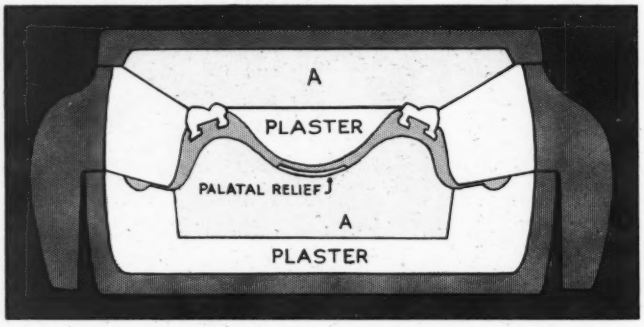
The DENTAL DIGEST

March

Use this technique to improve your Hecolite results



Diagramatic drawing of cross section of Hecolite denture and flask after pressing, showing proper flasking and bite retainer.

RAISING of the "bite" is due to the compressibility of ordinary dental plasters. However, the several new, quick-setting, hard gypsum products (Coecal, Cloverite, Castone, Speedrock, Agate, etc.) now on the market, show practically no compressibility. The proper use of these products in flasking Hecolite cases is shown as "A" in the illustration above.

Flasking may be done with the ordinary dental plasters, with the exception of the model and "bite" retainer.

When the second half of the flask is poured, fill up to the occlusal surface of the teeth only and taper to rim of the flask as in illustration.

When this plaster mix has set, moisten it. Pour in "bite" retainer, using any of the hard-setting, stone-like plasters. This form of "bite" retainer facilitates easy removal from the flask without danger of breaking the teeth.

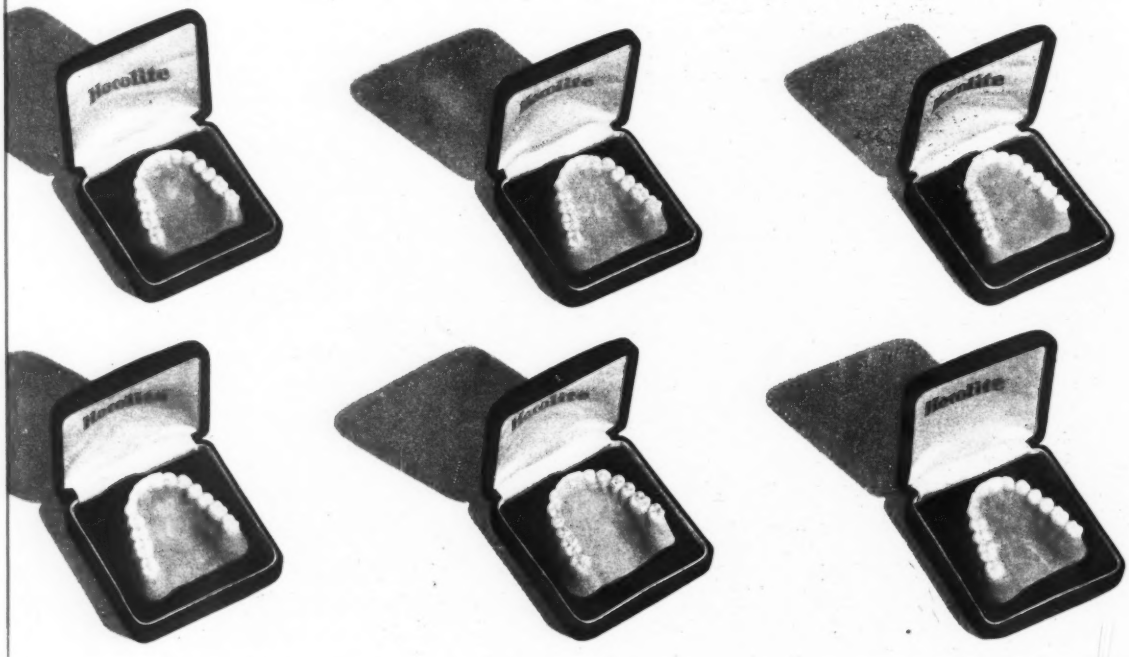
All models or casts should be made also of these vastly superior products, as illustrated.

Questions regarding this, or any other phase of Hecolite technique, will receive the prompt reply of our technical and research department.

Address inquiries to

AMERICAN HECOLITE DENTURE CORP.
HECOLITE BUILDING - PORTLAND, OREGON

New York Sales Office: 41 Union Square West



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IMMEDIATE DENTURES

SIDNEY S. JAFFE, D.D.S.
Washington, D. C.

WHEN one views the panorama of human knowledge, can he find anything in it that has contributed more to man's happiness than his present ability to ward off or to repair the ills an unkind Nature foists upon him? I wonder whether a patient appreciates what modern dental prosthesis has done for him? Once the loss of teeth through disease or accident meant that their loser was compelled to pass through life edentulous. Now, modern dentistry can replace the lost teeth with substitutes which leave their wearer, after a time, scarcely conscious of his deficiency.

Yet, it must be remembered that the scientific advances which have permitted man to triumph over the assaults of Nature have not been achieved without spirited battles. Unfortunately, these battles have not been against ignorance alone, but also against man's innate conservatism, his unwillingness to depart from trodden paths.

In dentistry, no less than in other fields, the pioneer has been forced to battle against well-entrenched ideas and practices. It is not surprising, therefore, that the theory of immediate full restorations continues to meet with some criticism. Is it necessary for a patient in need of complete dentures to be subjected to inconvenience, embarrassment, pain, and even the possibility of permanent maladjustment, which is inherent in the widespread practice of going edentulous for a long period before restoration is done? Once sheer necessity forced the dentist to answer affirmatively. This is no longer true. For several years I have employed a technique that permits immediate full restorations and that any competent dentist can master.

By immediate full restorations I mean construction of dentures before removal of the teeth, and insertion of the same dentures immediately following extraction, extraction and insertion being done at the same sitting. Full denture prosthesis is the replacement of a most important functional organ—one of the organs of digestion. Many of the problems inherent in full denture work are automatically solved by immediate restoration.

A. Advantages to the Patient

1. Postoperative pain is reduced and healing progresses more rapidly. This is true because the denture, acting as a splint or bandage, and being fitted immediately after extraction, will protect the alveoli against trauma and infection.

2. With my technique, there is little change in the anatomic form on the lingual side, and the change is made so easily that the patient becomes accustomed to the dentures in a short time. This is a point worth stressing. Dentists have been taught the fallacious theory too long that the alveolar ridge must be absorbed before prosthetic restoration can be attempted. Many patients are instructed to wait for weeks or even months before returning for the construction of dentures. Meanwhile, the edentulous mandible is virtually in a dislocated position. The psychologic effect, as well as the physical, cannot be exaggerated. During this edentulous period, the entire expression of the patient is changed. He feels unnatural, as though calamity had befallen him. And, very likely, he blames his condition on the dentist. Perhaps we are too apt to forget the enormous importance to the patient of the effect of an edentulous condition on his appearance. His expression altered, unable to enunciate clearly, he is miserable and hesitates to face his friends during the edentulous period. All of this embarrassment is avoided by immediate restoration.

B. Mutual Advantages to the Dentist and the Patient

1. The successful outcome of the dentist's effort is promoted because the patient will be constrained not to remove the dentures, even for a short period, as his friends have never seen him edentulous and he does not want them to do so. As the dentures are placed in the mouth while it is still anesthetized, the patient is not conscious of their presence, and, when the anesthesia wears off, he is already growing accustomed to them and soon feels natural again. There is no period of social or business embarrassment for him.

2. An immediate denture supplies proper occlusal rest; hence, the patient will maintain the proper intermaxillary relationship. Naturally, he will not suffer muscle fatigue, impaired hearing, and other associated ills. This is true because the muscles of mastication will function as usual and the habitual functional paths will be kept intact.

3. I am convinced that immediate replacement helps to conserve the alveolar process. The alveolar ridge does not absorb so readily as when replacement is delayed. On the contrary, it develops into a more favorable base. The slight, uniform pressure of the denture gives great comfort to the patient, and while long periods of sustained pressure would cause absorption of the bony base, intermittent pressure accelerates calcification.

4. Immediate replacement halts persistent postoperative bleeding. Every dentist has been confronted with stubborn cases of long-continued bleeding. There is no convenient way of holding a compress for a long enough period to be effective, and, furthermore, it is difficult to control the flow of blood at all with a compress in an edentulous patient. What more effective and simple means of controlling the hemorrhage can there be than a denture that fits over the bleeding area, acting as a bandage and helping to support the blood clot?

5. Centric relationship can be much more easily established by immediate replacement.

Only the ignorance of patients has made it possible for members of the

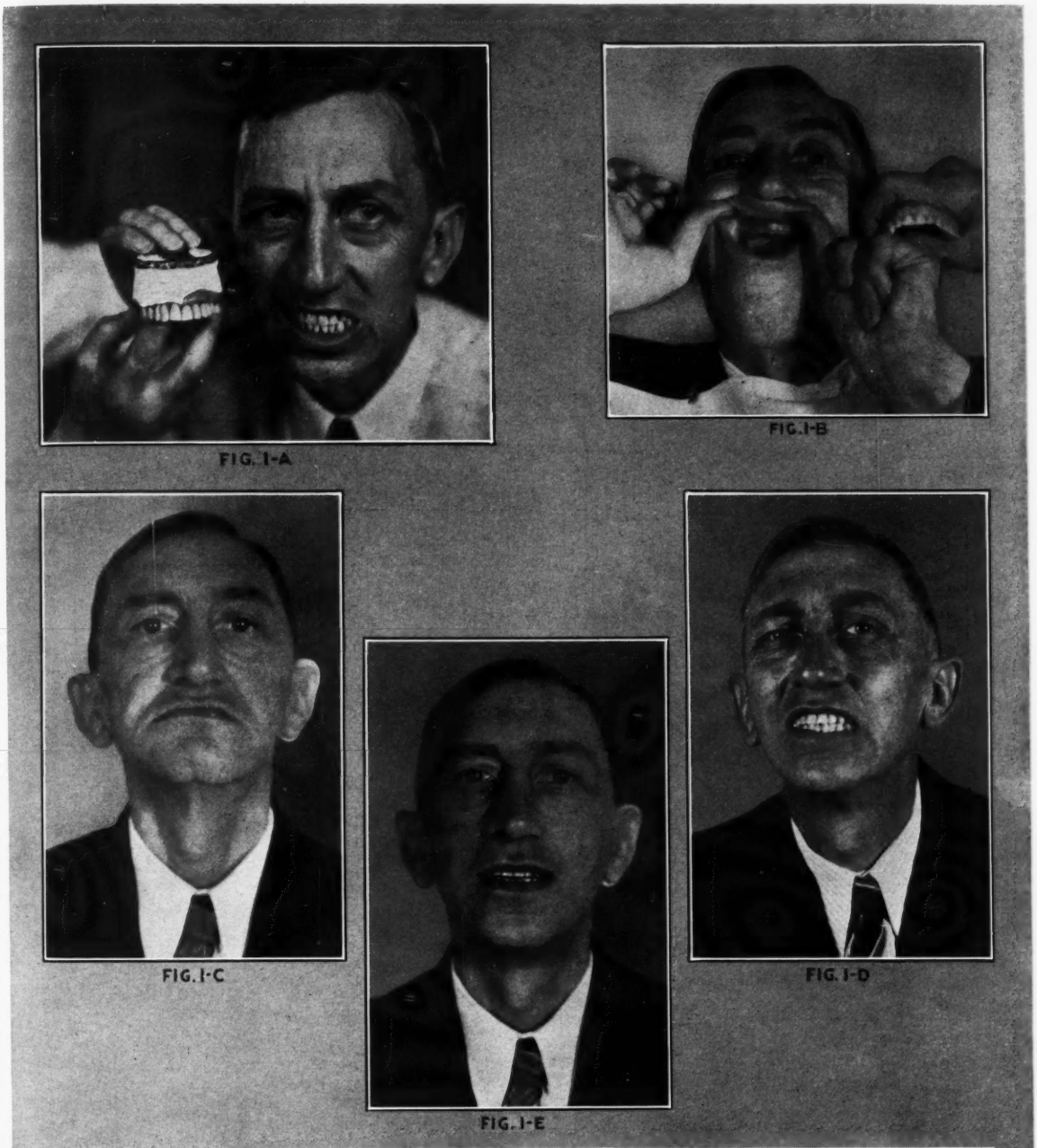


FIG. 1-A

FIG. 1-B

FIG. 1-C

FIG. 1-D

FIG. 1-E

Fig. 1—A, Appearance of patient before extraction of teeth, showing the absolute reproduction of the upper set-up. B, Finished denture near patient with teeth extracted. C, Edentulous expression. D and E, appearance of patient immediately after replacement of teeth.

dental profession to extract all of a patient's teeth without giving him an immediate substitute. The public at large accepts an edentulous period as a necessary evil, but this condition of affairs cannot long continue. Formerly, it could not be helped because (1) impression technique was faulty; (2) balance articulation was not understood; (3) most dentures were a series of failures. Dentists did not wish to add to their store of troubles. But today, with the increased knowledge of perfected techniques, there is nothing against immediate replacement.

Surgery

The construction of dentures should not be attempted unless the patient will permit preparation of the mouth surgically. In immediate denture work, the situation is ideal to perform this service well. Anything that savors of a surgical operation strikes terror in the hearts of most people; but the fear of preparation of the mouth should be groundless. When the ridges are properly prepared, there is less danger of persisting tender areas, and the gums heal more quickly.

I do not favor spectacular surgery. One should guard against that. The skill of the dentist interested in immediate denture work may be judged by his ability to remove the tooth with the granuloma and any sharp edges of bone. I believe in preserving the labial and buccal plates, and surely the lingual, so that the artificial teeth may be set where the natural teeth were and yet be set against a ridge to support them. A dentist should be able to detect bony abnormalities and correct them. Extensive osseous developments, or prominence in the tuberosity regions, and razor edges of the alveolar ridges, especially on the mandible, should be treated at this time. If they are not corrected, it will be impossible to construct dentures that will be pleasing to the eye and comfortable to wear. If infection is present at the apexes, there is further necessity for removing enough of the bone to gain access to the parts involved and to curet properly.

Lingual Matrix as a Pre-Extraction Record

More and more dentists are coming to the realization of the necessity of taking pre-extraction records as a means of reestablishing the facial characteristics that existed prior to extraction.

Several methods are in use today. The most common are the wax mask of the face and photographic records, and a profile of the exact size which is cut out and fitted to the face. Both of these methods require rather elaborate equipment, and, at that, the teeth can only be placed in their positions by measurements and visual comparison. There is no definite way of proving that they are absolutely in the same cranial position as the natural teeth were.

The use of my lingual matrix (1) requires no special equipment; (2) it assures not only an absolute method of positing the teeth exactly as they were before extraction but also (3) a proper interdental opening, and thereby absolutely reproduces the facial contour.

The lingual matrix serves a double purpose: (1) it can be applied in every case of immediate dentures, and (2) may be used to insure absolute cranial placement of artificial teeth when the dentures are made any time after extraction; thus, positive reproduction of facial contours is insured.

Technique for Immediate Dentures

The technique described here is intended only for normal cases in which the reproduction of the natural teeth is desirable.

Any impression material that has given satisfaction can be used to obtain a good impression. I consider Dentocoll the most satisfactory material for immediate restorations, because with this material impressions of rotated and inclined teeth are no more difficult to make than are impressions of teeth in proper alinement. It is simple to manipulate, pleasant to taste, permits of an accurate impression of all of the usual undercuts without distortion, and can be removed from the mouth in one piece. It results in retention by simple adaptation and adhesion rather than by overcompression of the tissues and suction. It gives an accurate picture of the tissues in totally unstrained relation.

1. Impressions of each jaw should be obtained, being careful to include the peripheries.

2. After the casts are poured in a good plaster, they are duplicated with Dupli-com which is an almost indispensable material in my practice. It will accurately duplicate and register every minute detail of the master model, including undercuts and irregular dentition. One set of casts is the master models, which are kept as a permanent record of the patient's natural denture. The other casts are working models (Fig. 2).

3. After impressions have been obtained and casts poured, a face bow transfer is taken for the proper orientation of the casts on the articulator.

4. A centric occlusion record is next taken in wax. As the patient still has his natural teeth, there usually are enough landmarks to indicate the proper centric relationship. If many teeth are missing, bite blocks should be constructed on trial bases, the bite being raised if necessary, and the centric relationship obtained on these blocks.

5. The two pairs of casts should be placed in the same relationship, and should be interchangeable on any adjustable articulator (Fig. 3). I prefer to use an articulator on which the intercondylar width is adjustable because I believe that the rotation center is an important factor, and that the intercondylar space on the articulator should be as near the intercondylar width in the mouth as possible.

6. The next step is to obtain the patient's protrusion record in order to set the condylar inclination in accordance with the patient's check-bite readings.

7. The upper cast is then replaced in the upper impression of the face bow fork in exactly the same position it occupied in the mouth.

8. The face bow is centered by setting the condylar ends over the projections on the instrument made to receive them, and the upper cast is mounted on the upper mounting plate of the articulator having the occlusal plane about midway between the bows of the articulator.

9. When the plaster is set, the face bow and fork are removed; the wax centric record is placed on the upper cast, and the lower cast is placed in occlusion with the upper exactly as it was in the mouth. The lower cast is attached to the lower mounting plate of the articulator with the plaster.

10. The condylar inclinations are adjusted with the protrusive bite rec-

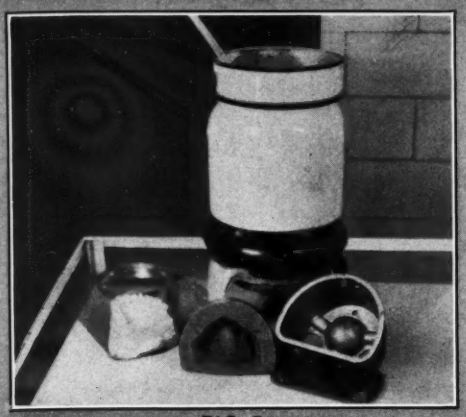


FIG. 2

FIG. 3

FIG. 4-A

FIG. 4-B

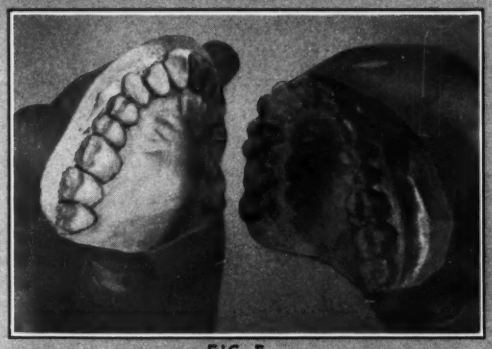


FIG. 5

FIG. 6

Fig. 2—Duplicating outfit consisting of a special flask, double boiler, gas-stand; the Dupli-com is melted to the consistency of syrup and poured over the cast in this special flask.

Fig. 3—Master casts and duplicate casts placed in exactly the same position on two articulators, showing the lingual matrix which will fit either cast.

Fig. 4—A, Paraffin matrix adapted to master cast; B, lingual view.

Fig. 5—Lingual matrix removed from cast showing the counterpart of the palate, ligual, incisal, and occlusal surfaces.

Fig. 6—Teeth cut off working model (right of photograph), and (left) lingual matrix ready to be applied to model (edentulous).

FIG. 7-A

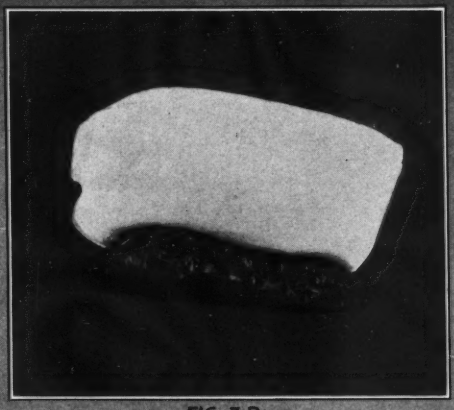


FIG. 7-B

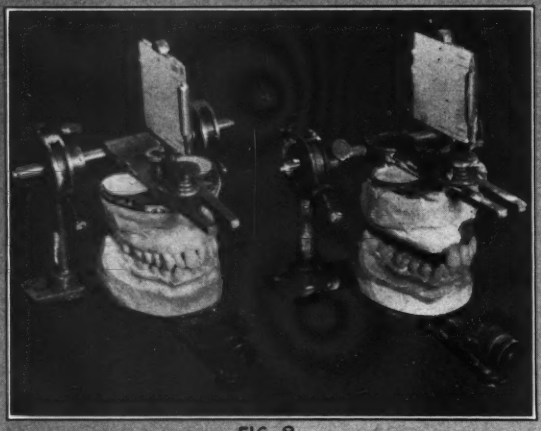


FIG. 8

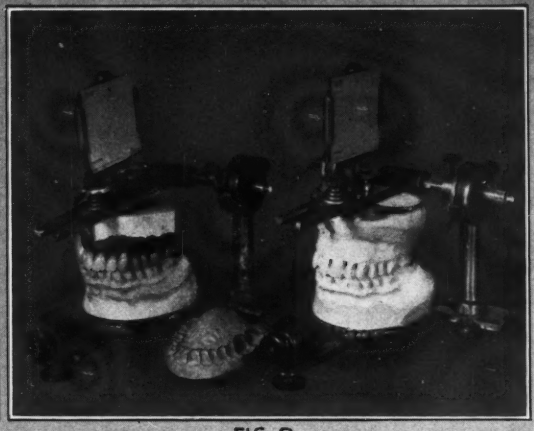


FIG. 9

FIG. 10

Fig. 7—A, Lingual matrix in position to edentulous model and half of the teeth put in place; B, edentulous model with lingual matrix in place before any teeth have been fitted to it.

Fig. 8—Master casts and working casts showing half of set-up.

Fig. 9—Set-up completed; lingual matrix is between the two articulators. Note absolute reproduction of teeth.

Fig. 10—Plasticine dammed off the occlusal surfaces on master cast showing the crevices of all the teeth exposed about one-eighth inch on lingual side. At right of photograph, metal (low-fusing) counterpart.

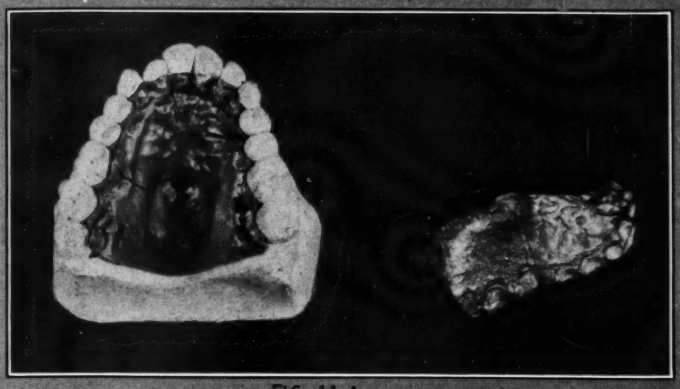


FIG. 11-A

FIG. 11-B

FIG. 12

FIG. 13-A

FIG. 13-B

Fig. 11—A, Number 7 Ash metal has been swaged to low-fusing metal counter-die and placed on master cast. Note how the lingual surfaces of teeth are adapted to patient's own teeth. B, Palatal side of set-up beside the master cast. Note similarity of posting.

Fig. 12—Ash metal matrix removed from master cast shown in Fig. 11, and placed on the model with the artificial set-up. This metal is discarded in flasking, for it takes the place of a wax palate.

Fig. 13—A, Set-up of patient's teeth in these pictures checked with lingual matrix and showing a thin layer of wax on the labial surfaces on one side. Other side to be waxed the same way. B, Master cast and working cast with set-up placed side by side. Lingual matrix under working cast. Note absolute similarity in set-up.

ord which was previously taken in the mouth. The condyle path clamps are released, and the protrusive bite record is inserted between the upper and lower casts. The condyle paths are manipulated until both casts are firmly seated in the protrusive bite record exactly as they were when the record was made in the mouth. Plenty of time should be taken to make this adjustment, and when satisfied that it is correct, the condyle path clamps are locked. A written record is made for future reference of the inclination on each side (Fig. 3).

11. Now comes what I believe to be the most important step; *i.e.,* placing the teeth in the same relative positions that they occupied in the mouth, in the same relationship to the tongue as the natural teeth occupied.

The technique until recently was to cut one tooth at a time from the cast and replace it with an artificial tooth. With this method, the inside of the finished denture presented an uneven surface. It was hardly possible to predetermine accurately the amount of alveolar process that would be removed during extraction and preparation of the mouth.

My technique includes the making of a paraffin wax matrix of the palate and of the lingual and occlusal surfaces of the teeth (Figs. 4 and 5), and the cutting off of all of the teeth of the plaster cast at one time, thereby obtaining a smoother alveolar ridge than would result from the cutting off of one tooth at a time and replacing it immediately (Fig. 6). My method enables one to reproduce the lingual outline naturally, which insures comfort and adds to the stability of the denture.

How to Obtain the Natural Relationship of Artificial Teeth

1. A thin sheet of pink paraffin wax is carefully adapted to the palate of the cast and around the lingual surfaces of the teeth, extending over the incisal, lingual, and buccal cusps.

2. This palatal counterpart is built up solidly with paraffin wax, extending about one-eighth inch above the incisal and occlusal surfaces.

3. The wax is chilled and trimmed with a sharp knife around the labial and buccal cusps so that the thickness of the wax is about one-eighth inch over the teeth except where the buccal and labial surfaces are exposed (Figs. 4, 5, and 6).

As the palate does not change after extraction, this matrix will find a definite seat on the cast (Fig. 7).

4. The crowns of all teeth of the upper case are cut off, leaving about 1 mm. of the neck of each plaster tooth. The extending millimeter of plaster is smoothed down to make an even ridge, being careful not to change the cast of the soft tissue.

It is desired in this technique to retain on the model the entire outline of the labial tissues, regardless of how one may see fit to trim the tissues after extraction. My aim is to reproduce permanently in the dentures the shape and outline of the tissues as they were before extraction (Fig. 6).

5. After the teeth have been cut off the upper case, post-dam arbitrarily at the junction of the hard and soft areas by scraping so as to produce a beveled groove. Provision should be made for necessary relief over the hard areas.

6. The paraffin wax matrix is placed on the cast (Figs. 7 and 8), and the artificial teeth are fitted in the spaces of the matrix. With a definite registration of the lingual and occlusal surfaces, the fitting becomes rather an easy task.

7. The matrix is removed, and note is taken of how the set up teeth fit with the plaster teeth of the lower cast (Fig. 9).

8. One proceeds with the same technique on the mandibular cast. After having satisfied oneself with the position of the anteriors, all that is necessary is to change slightly the posterior teeth in order to obtain the balanced articulation which is necessary for the proper functioning of any artificial dentures.

Balanced occlusion may be defined as such contacts of the occlusal surfaces of all the teeth as will maintain stability of the dentures in the various excursions of the mandible. This is, of course, the ideal balance for which to strive.

9. The teeth having been set up, the next step is to reproduce the palate, the rugae, and the lingual necks of the patient's own teeth.

My favorite method is (a) to take the master cast and dam off the teeth with plasticine, the palate and about one-eighth inch of the lingual surfaces of the teeth being left exposed (Fig. 10). (b) Low-fusing metal is then poured on the cast (Fig. 10). (c) When cooled, a piece of Ash number 7 soft metal, which is about 24-gauge, is placed upon the metal die, swaged with a rubber pad, (d) trimmed and fitted to the palate, and (e) waxed and carved (Figs. 11 and 12). The thinnest amount of wax possible is placed on the labial surface (Fig. 13).

10. At the time the impressions are taken, teeth should be selected with due regard to mold and shade. The teeth should harmonize with the natural teeth in the mold and shade unless there is some significant reason for not doing so. The mold guides of all manufacturers should be consulted; individual peculiarities should be reproduced. To bring this about, it may be necessary to resort to grinding one or more teeth. The teeth may require staining with fusing stains. This can be done effectively by investing the pins before placing them in the furnace.

11. After the dentures have been vulcanized and finished, the natural teeth are extracted, and the immediate denture is inserted.

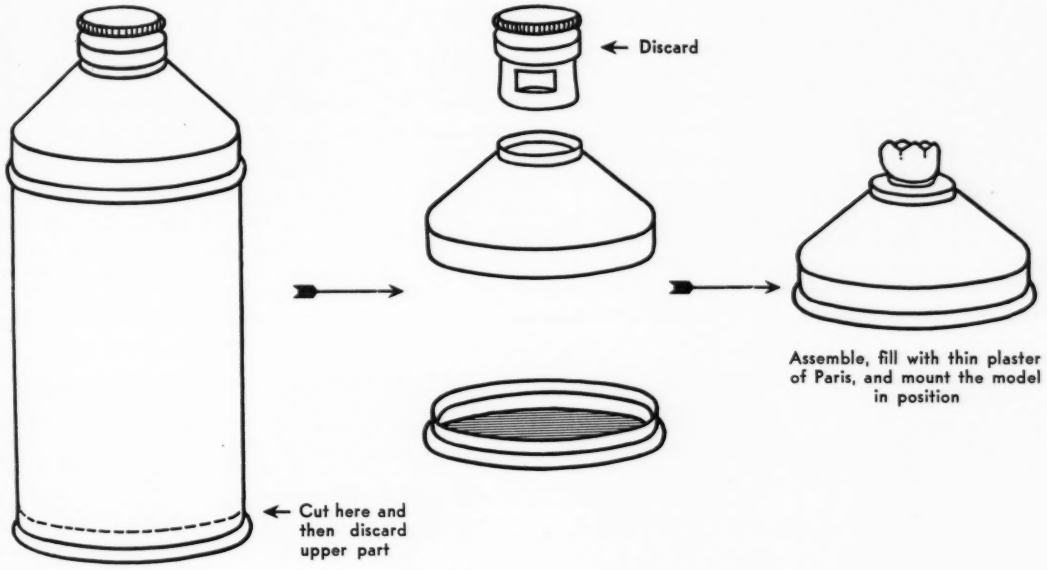
Permanence of Dentures

While I hesitate to use the word "permanent," these dentures are far from temporary. As I have already mentioned, (1) the ridges under immediate dentures remain in better shape much longer and in nearly all the cases that I have observed, there is little absorption of the alveoli. (2) After the patient has worn the dentures for a reasonable time, I rebase the same dentures, because I know that I hardly can improve on the appearance or balance, and the patient is by this time used to them; however, the rebasing is not done in the conventional manner. If modeling composition or plaster were used to rebase them in the accepted manner, only a snap impression would be had. Since different areas in the mouth have varying degrees of compressibility, I rebase with compound in sections, a little at a time, with as little material as possible.

If, for some reason, it will be found necessary to make a new denture for the patient at some future date, the same technique for positing the teeth can be used. As the palate never changes, the lingual matrix will fit on the palate of any impression taken from the same patient.

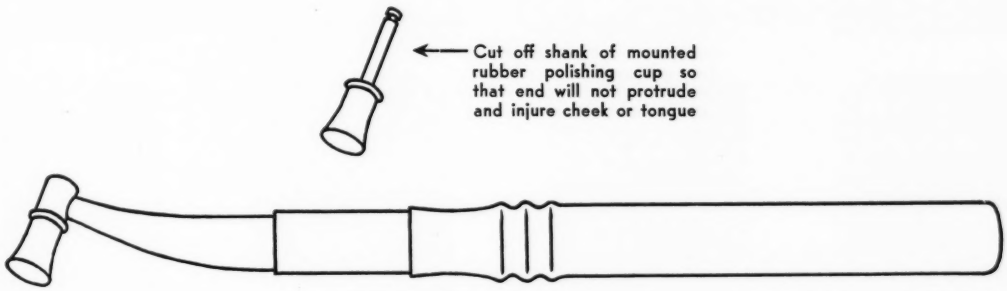
A BASE FOR SMALL DEMONSTRATION MODELS

C. FRANK TUMA, D.D.S.
Cleveland


Discard
Assemble, fill with thin plaster of Paris, and mount the model in position
Cut here and then discard upper part
Empty sifter-top tooth powder can

A HANDY MEDICAMENT APPLICATOR

C. P. CLEVELAND, D.D.S.
Jacksonville, Florida


Cut off shank of mounted rubber polishing cup so that end will not protrude and injure cheek or tongue
Mount cup in Porte polisher or other suitable handle as illustrated.

The medicament applicator as illustrated here is a convenient instrument for applying drugs in the mouth. It is especially useful in treating Vincent's infection and in medicating shallow pyorrhea pockets.

The cup holds only a drop of medicine. It is placed against the crown of the tooth and pushed gingivally with a gentle pumping motion, forcing the drug beneath the free margin of the gum. The cup is sufficiently flexible to follow into the interproximal spaces and when properly manipulated a more thorough application of the drug may be made with it than by means of cotton swabs. When indicated, it is likewise a convenient instrument for massaging small local areas.

DIAGNOSIS OF LESIONS OF THE ORAL MUCOUS MEMBRANE

SAMUEL CHARLES MILLER, D.D.S.
New York

NO doubt the most important field of dental practice is that of diagnosis. Although this was previously considered part of every branch of dentistry, the complexity and detail into which this particular field goes have made it necessary to establish separate departments in the leading dental schools for the exclusive study of this subject.

The dentist's responsibility is equivalent to that of the physician, since it is within the dentist's scope to lengthen the span of life of a patient by proper and early diagnosis and thus facilitate the initiation of correct curative procedure. The institution of proper treatment cannot be accomplished without the basic foundation of correct diagnosis.

One should not be misled by the patient who enters the office with the request to have a specific dental operation performed, such as the filling or extraction of a tooth, thus presuming to have the knowledge which has come to the dentist only through many years of study and training. A complete examination must be advised, no matter how well established the diagnosis appears, before final

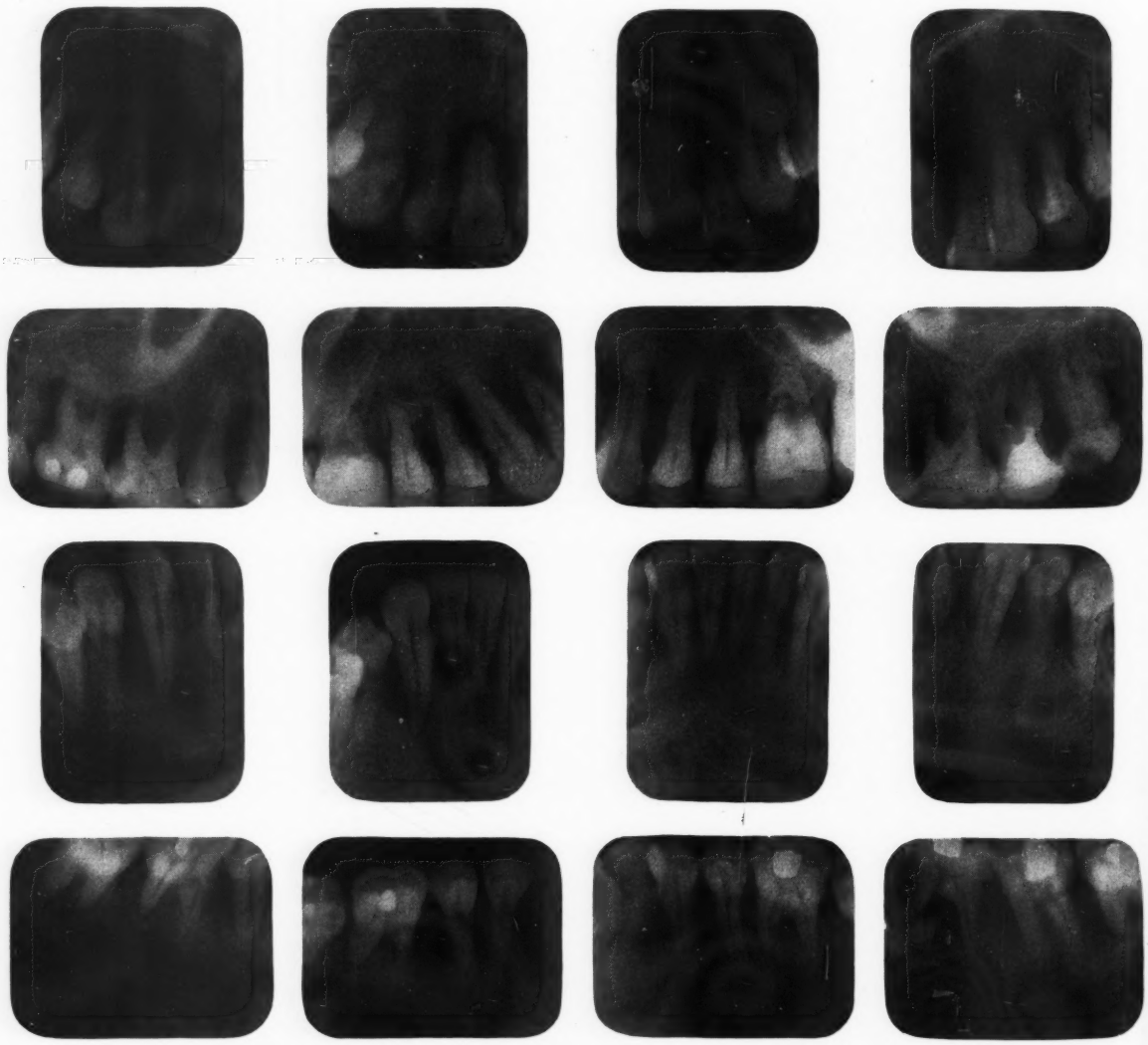


Fig. A—Roentgenogram of the case shown in Fig. 8. The bone is lost generally throughout the mouth without relationship to the occlusion or age of the patient.

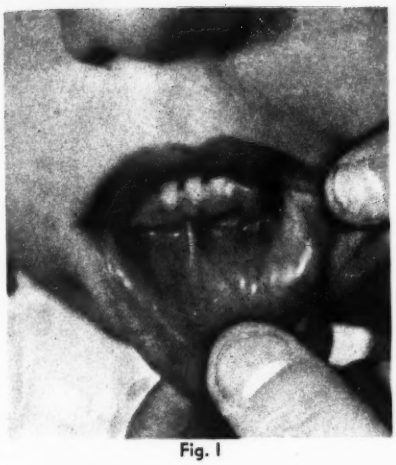


Fig. 1

Fig. 1—Aphthous Ulcers. These may be single or multiple and are set on a red base. The size remains constant until the condition disappears after about four days. Aphthae are most commonly due to a gastro-intestinal disturbance. In this case the patient was a girl, aged 11 years.

Fig. 2—Chronic Vincent's Infection. Destruction of the interproximal papillae in a man, aged 36. The gum margin tends to assume a straight line. Differential diagnosis to exclude syphilis should always be made in these cases.

Fig. 2

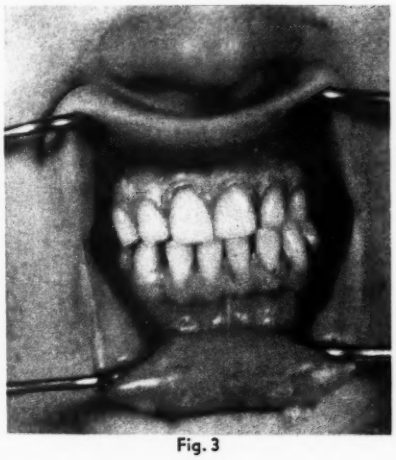


Fig. 3

Fig. 3—Early Diagnostic Signs of Traumatic Occlusion in a woman, aged 23. (A) Over the two upper central incisors may be seen the "traumatic crescents." These are differentiated by a slight thickening and blanching of the gingival margin. (B) McCall's festoons are seen at the gingival margins of the lower incisors and especially well defined at the gingival margin of the lower left cuspid.

Fig. 4—Unhygienic Pyorrhea—Periodontitis Simplex. The gingival inflammation, which is denoted by the change of color of the gum tissue from a light pink to a distinct red, is due to the mechanical irritation of the salivary calculus. This condition was found in a girl, aged 18 years.

Fig. 4

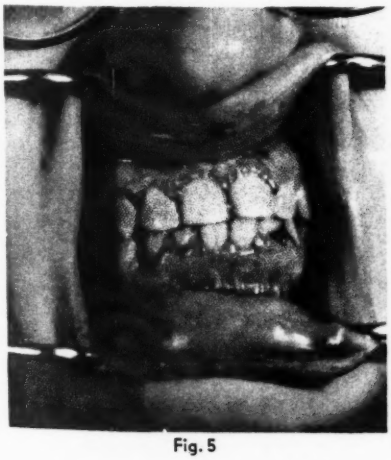


Fig. 5

Fig. 5—Indolent Gingivitis. The gum tissue is slightly edematous, with a catarrhal exudate evident. The teeth in this condition are covered with a thick deposit of precipitated mucin which can be scraped off with a scaler. A dietary disturbance usually accompanies this type of gingivitis. The patient was a girl, aged 17 years.

Fig. 6—Scorbutic Gingivitis. The gum tissue is bluish and bloated, the swelling covering practically the entire crowns of the teeth. The gingival tissue is soft and is easily ruptured, allowing the escape of a seropurulent material. A diet which included no fresh, colored vegetables or fruits was productive of this condition because the patient, a man, aged 42, lacked vitamin C.

Fig. 6

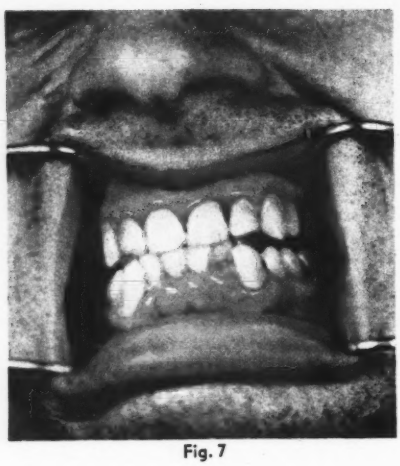


Fig. 7

Fig. 7—Periodontal Disturbance Produced by a Heavy Alkaline Diet. The gum tissue has a peculiarly pasty appearance. The teeth are coated and there is a tendency toward cervical decalcification. This condition, which was found, in this case, in a man, aged 37, accompanies a diet rich in bread, starches, and meat and deficient in fruits, vegetables, and dairy products.

Fig. 8—Gingival Disturbance Accompanying a Syphilitic Alveoloclasia. The gingival margin shows a venous congestion. The tissue is smooth and has lost its stipling and characteristic pale pink color in this patient, a woman, aged 23. See Fig. A.

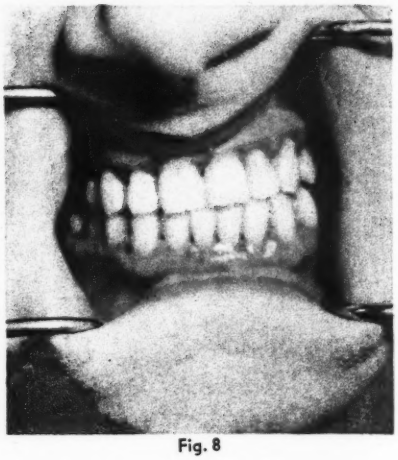


Fig. 8

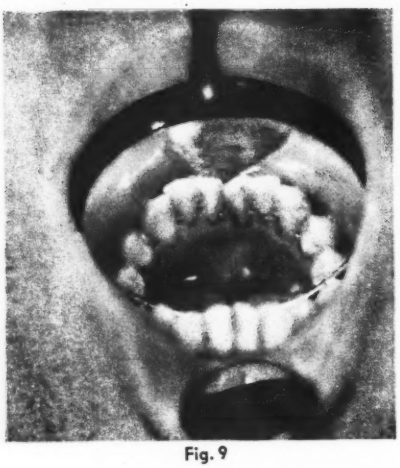


Fig. 9

Fig. 9—Bismuth Line in a woman, aged 27, undergoing antisyphilitic treatment. Note the gray line in the gum tissue of the marginal gingiva. The use of any of the cumulative drugs may produce either a deposition of the metal in the marginal gingiva or, if severe, a definite and pronounced stomatitis may result. The color of the deposit varies with the metal that is being accumulated, as for example: mercury, bluish; lead, dark gray.

Fig. 10—Effect of Biting Habit. A deep pocket is present on the distal of the upper right central and mesial of the right lateral incisor, as well as between the lower central incisors. The patient, a girl, aged 13 years, had the habit of biting pencils while studying, practically always using the same teeth. See Fig. B on opposite page.

Fig. 10

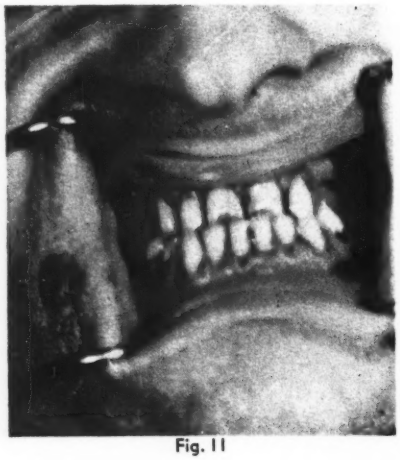


Fig. 11

Fig. 11—Herpes Facialis and Labialis. The patient, a man, aged 28, developed herpes probably as a result of the heavy administration of antipyrin in the treatment of a cold. Herpes starts as a number of small vesicles in groups, which later break and coalesce to form a continuous ulcer. A differential diagnosis should be made in a case of this type since the lesions resemble, in some respects, those of the secondary stage of syphilis.

Fig. 12—Leukoplakia Buccalis. The leukoplakia is hard and slightly raised from the surface. It is usually due to irritation, such as that from pipe-smoking, tobacco-chewing, the use of spicy foods, or from sharp edges of teeth. Since this is a precancerous condition, proper early diagnosis is imperative. The condition in this case was found in a man, aged 62.

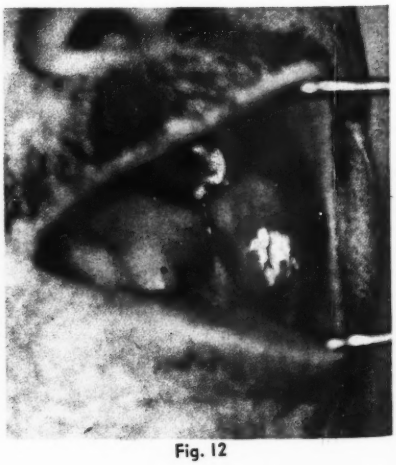


Fig. 12

judgment is made. This is the only scientific way of arriving at a correct decision.

Procedure

It is advantageous to follow a definite system in examining the mouth, thus avoiding the possibility of overlooking any condition that may be present. A good procedure is suggested, therefore, although only a few of the outstanding conditions which might be found can be listed here:

1. *Palate*—Here may be seen evidences of various blood changes, gummata, exostoses, and clefts.

2. *Throat* — Tonsils and fauces should be examined for infections or inflammations that may be related to the oral condition.

3. *Buccal Parietes*—Lichen planus, leukoplakia, carcinoma, and many other conditions may be found here.

4. *Tongue and Sublingual Tissues* —The presence of leukoplakia lingualis, carcinoma, glossitis, tuberculosis, syphilis, or ranula should not be overlooked.

5. *Gingival Tissues* — Periodontic disturbances, acute infections, oral manifestations of exanthematic diseases, and dietary deficiencies should be watched for here.

6. *Teeth*—Cavities, erosions, mottling, hypoplasia, and abnormalities of form and position are all important for the proper diagnosis, and care should be taken to detect their presence.

In the accompanying illustrations which were taken in natural color (Agfa process) are seen some of the more common conditions which may appear and which are likely to present themselves in the dental office at any time.

These are only a small portion of the many conditions of both local and systemic origin which may be revealed by dental examination. They indicate the need of a thorough study of this branch of dentistry in order to keep abreast satisfactorily with the increasing knowledge which is continually presenting itself.

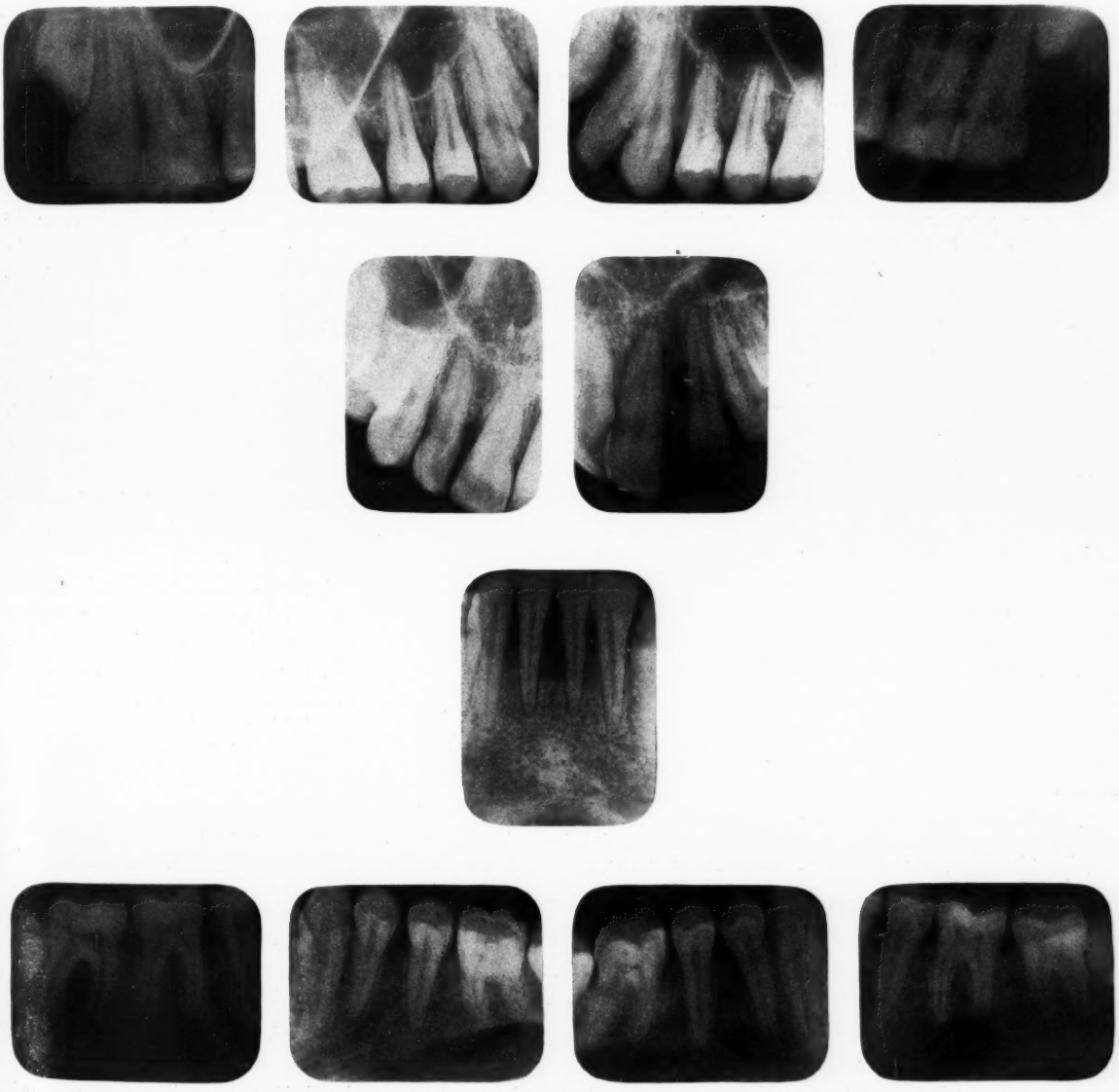


Fig. B—Roentgenograms showing excessive bone destruction in the upper right central and lateral incisor region and lower central incisor region. (Same case as Fig. 10.)

A SIMPLIFIED METHOD OF CONSTRUCTING A FIXED-MOVABLE BRIDGE

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Chicago

1. The first consideration is the matter of abutments. The use of inlays for abutments wherever possible is preferred because they afford a solid anchorage with the least amount of interference with the supporting tissues.

2. The anterior abutment is generally a D. O. inlay (Fig. 1, B). I say "generally" because an operator is justified in cases in which the patient is quite young, or has a predisposition to caries, in making an M. O. D. preparation in the anterior abutment tooth in order to preclude the possibility of decay on its mesial aspect. The posterior abutment is always more heavily constructed, such as an M. O. D. preparation, or, if the conditions do not permit, a three-quarter crown or full cast crown.

3. This stage having been reached, the inlay patterns (Fig. 1, C) are made, and the inlays cast in some one of the harder varieties of gold alloy, after which they are placed in the cavities, and finished according to regular inlay procedure.

4. An impression is then taken of the area in a dissolving plaster, several teeth on each side of the space to be bridged being included (Fig. 2, D).

5. It is also essential to make an upper impression of the opposing teeth and a wax bite, in the centric position, so that the case may be articulated.

6. Before the inlays are placed in the impression, a slot, from 1½ mm. to 2 mm. long is cut in the anterior inlay across the marginal ridge half way between the buccal and lingual margins of the inlay. The slot can be cut to fit with a number 560 fissure bur.

7. The inlays are placed in the impression which is treated and then run up in a hard, dense investment in the usual manner. The impression is allowed to set, separated, and then articulated with its occluding model.

8. A root tip of the saddle type, of the proper size, is then selected and ground to make as much contact with the tissue over the ridge as possible (Fig. 2, F). Enough space is allowed between the porcelain and its accompanying backing and the occlusal of the opposing teeth for a carving in inlay wax of the occlusal surface of the pontic.

In the construction of a pontic in which a porcelain tip or saddle is used, care must be taken to grind in the porcelain in such a manner as to have a finished piece of work that will have little or no pressure on the underlying tissues. It will be found that even though the pontic comes within only one-half millimeter of the gum tissue, this tissue will grow and embrace the glazed porcelain.

The placing of root-tipped pontics that penetrate the socket more than 1 mm. in cases of recent extraction is to be discouraged, because such practice tends to prevent the normal ridge formation and brings about a recession of the tissues to such an extent that they will no longer make contact with the pontic.

9. With the ground-in root tip, or saddle, and its backing in place, the occlusal surface of the pontic is carved to occlusion (Fig. 3), and the spur (a piece of 13 gauge, round, clasp wire) is waxed into the carving so that it lay in the slot in the anterior inlay provided for this purpose. The placing of a point or two of 18 karat solder on the occlusal aspect of the backing to insure fusion with the cast portion is advocated. The gold used in casting should be hot enough to fuse to the spur.

10. The occlusal portion of the pontic is invested and cast. It is not necessary, however, to use such a hard gold in this instance, 22 karat plate being sufficient for the purpose.

11. The bridge is assembled on the model; the pontic is waxed to the distal abutment; the porcelain is removed by cutting away enough of the cast to facilitate this operation, and the whole invested and soldered from the occlusal, which will be found satisfactory if the whole investment is heated to the proper soldering temperature.

12. When the soldering has been done, the bridge is finished in the usual manner.

13. The porcelain saddle's ground surface, which contacts the tissues, must be glazed before setting (Fig. 2, F). For this work it is not necessary to have a furnace such as is used in the baking of jacket crowns, but rather one of the less expensive varieties of which there are several on the market to be used only for this purpose. The function of the glaze is twofold: (1) It provides a smooth surfaces which is tolerated better by the tissues than any other, and (2) it adds just enough thickness to the porcelain to insure a proper contact with the tissue when the bridge is set.

14. The routine cementing of the tip to the bridge and the setting of the bridge are then accomplished (Fig. 2, G).

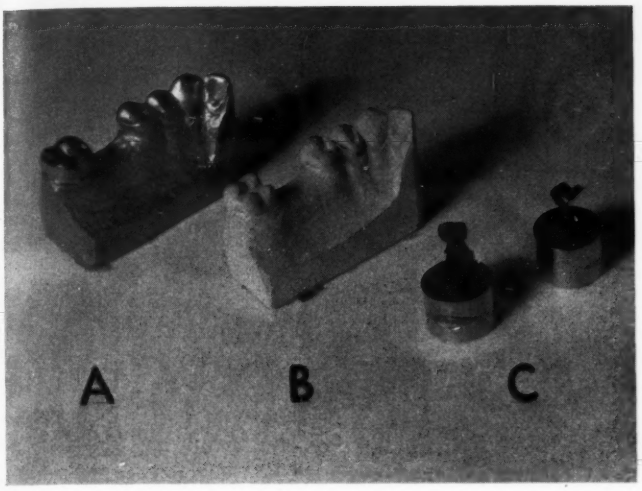

Fig. 1

Fig. 1—A, Original model; B, cavity preparation; C, inlay patterns.

Fig. 2 — D, impression with inlays in place; E, occlusal carving with spur waxed in position before casting; F, ground-in root tip; G, finished bridge.

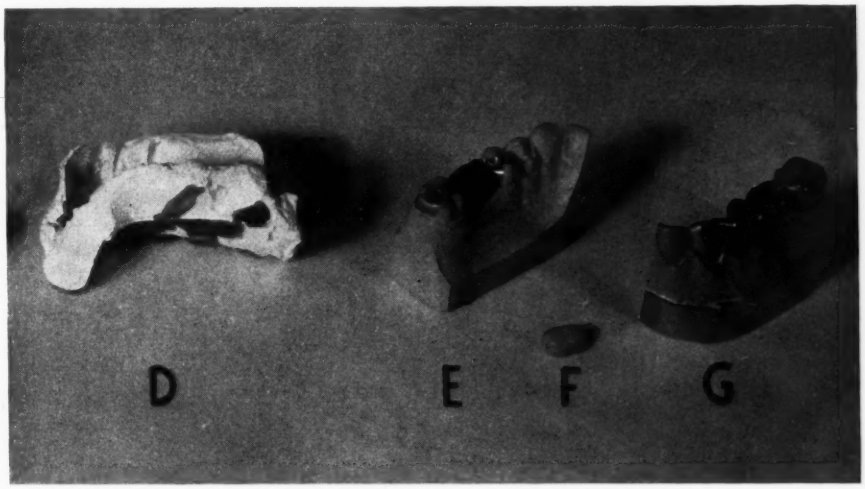

Fig. 2

Fig. 3

Fig. 3—Same as E in Fig. 2, showing the spur waxed in position.

PREPARATION OF THE PORCELAIN JACKET CROWN

SOPHIA N. BOLOTNY, D.D.S.
Chicago

Instruments

1. Chisels 43-41.
2. Miller stones.
3. Burs: Straight burs for the anterior teeth and contra-angle for the posterior; fissure burs, numbers 701, 702, 557, and 558; and end-cutting burs 900 and 901.
4. Carbo and paper discs.
5. Finisher to smooth the shoulders.
6. Copper bands.
7. Celluloid crown forms.
8. Temporary stopping.
9. Cement.
10. Impression compound.

Steps in Preparation of Anterior Teeth

1. Two millimeters are cut off the incisal edge in the middle third, using a Miller stone (Fig. 2).

2. Only the enamel of the mesial and distal surfaces of the tooth is cut off, cutting only to the free gingival margin, parallel to the long axis of the tooth. A separating carbo disc is used (Fig. 3).

3. The labial and lingual surfaces are cut through the enamel in the incisal-gingival direction, using a five-eighth inch Miller knife-edge stone (Fig. 4).

4. With the same five-eighth inch stone, the enamel is cut through in the mesial-distal direction so as to have all the enamel cut in square pieces (Fig. 4).

5. With chisels 41-43 the squares are chipped off from the labial and lingual surfaces (Fig. 5).

6. To prepare the shoulder, the surfaces are cut starting from one given point and carried one-half millimeter, not deeper than 1 mm., below the gingival margin. The shoulder is completed when it is cut on around the tooth. Numbers 701, 702, 557, and 558 cross-cutting burs are used, and numbers 900 and 901 end-cutting burs (Fig. 6).

7. The shoulder is smoothed with the small finishing bur and the tooth with cuttle-fish, fine paper disc. The preparation of the tooth should be smoothed so as not to have sharp angles and undercuts (Fig. 7).

Preparations of the posterior teeth for the jacket crowns should be done in the same manner, the same instruments and stones being used; but it is advisable to use contra-angle burs instead of straight burs.

Cautions

1. To avoid injury of the ligaments attached to the periodontal membrane, and fracture of the porcelain jacket crown, one should be careful not to cut off all the enamel over the gingival.

2. One should not cut flat to the occlusal surface of the posterior teeth. In the preparation, the anatomy of the tooth should be kept.

3. If the teeth to be prepared for the jacket crowns are badly decayed, they should be treated and filled in the usual way, then prepared for the jacket crowns. That will help to make the correct preparation which is most important for the success of the porcelain jacket crown (Fig. 8).

How to Take Impression of Preparation for Die

1. The proper copper band is selected, and the wire measurement of the tooth is taken before the shoulder is cut.

2. The mesial and distal edges of the copper band are cut off in V-shape.

3. The gingival edge is smoothed.

4. The other end of the copper is bent triangularly and flattened.

5. The copper band is filled with the impression compound.

6. The impression is warmed but not allowed to get too hot.

7. The prepared tooth is smeared with vaseline.

8. The impression of the preparation is taken, pushing the band with the compound slowly toward the gingival.

9. The excess of the impression compound is trimmed off.

10. The impression is chilled; then it is taken off slowly so as not to break.

How to Take Impression for Models

1. A celluloid crown is selected of the proper size and shape.

2. The crown is filled with temporary stopping, and the stopping is warmed.

3. The crown is fitted onto the prepared tooth.

4. The excess of the temporary stopping is trimmed off at the gingival.

5. Plaster of Paris is mixed and poured into the selected tray.

6. An impression of the prepared tooth with the temporary crown on is taken, several adjoining teeth being included.

7. When the plaster is hard, it is taken off. In that way, the plaster impression with the temporary crown of the preparation in it will be held, and there will be the possibility of having the die in the model in the exact position and relationship to the adjoining teeth.

Protection of Prepared Tooth

1. A celluloid crown of the proper size and shape is selected.

2. The prepared tooth and the celluloid crown are smeared with cocoa butter or vaseline.

3. The cement is selected and mixed (Kryptex is preferred).

4. The celluloid crown is filled with the cement and set on the prepared tooth.

5. The cement is trimmed off at the gingival.

6. The celluloid is cut from the gingival lengthwise toward the incisal edge.

7. The celluloid crown is taken off. With the cement crown on the preparation, the tooth and gums are well protected, and the patient may be dismissed.

(Four pages of illustrations follow)

Fig. 1—Instruments used in the preparation of a porcelain jacket crown.

Fig. 2—Miller stone used in cutting off incisal edge in middle third.

Fig. 3—Separating carbo disc used in cutting off enamel of mesial and distal surfaces of tooth.

Fig. 4—Cutting through the enamel of labial and lingual surfaces in the incisal-gingival direction.

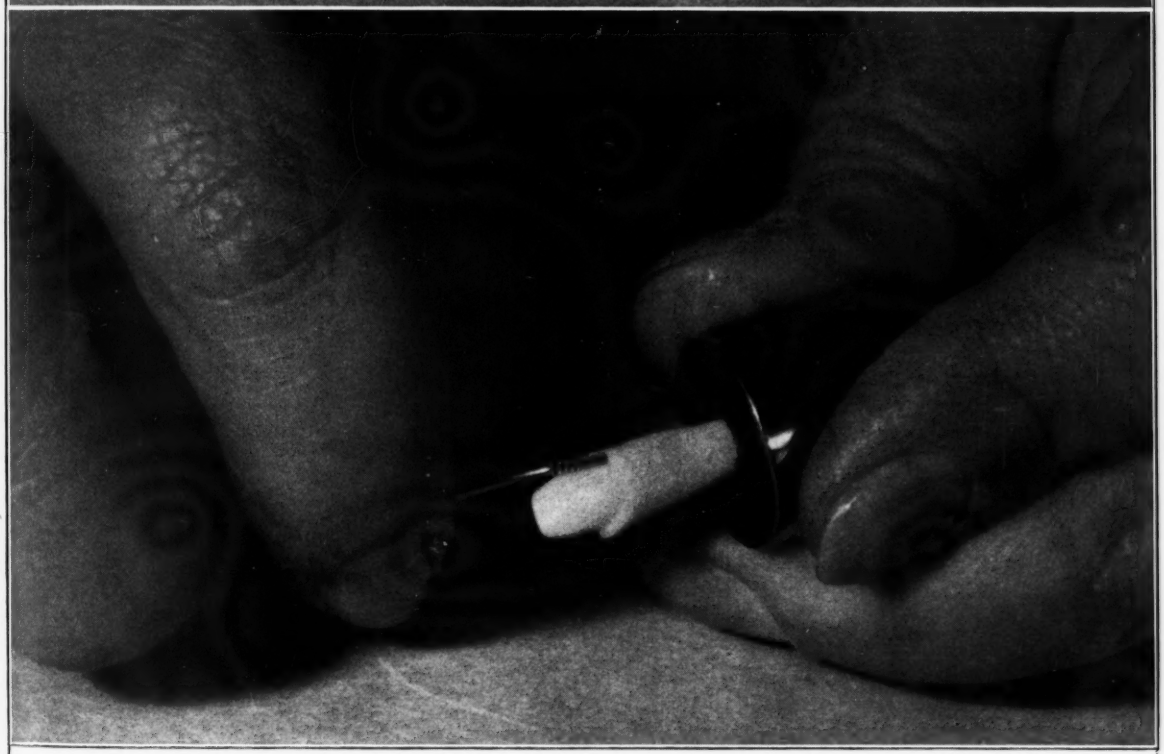

Fig. 5—Squares being chipped off from the labial and lingual surfaces.

Fig. 6—Preparation of the shoulder.

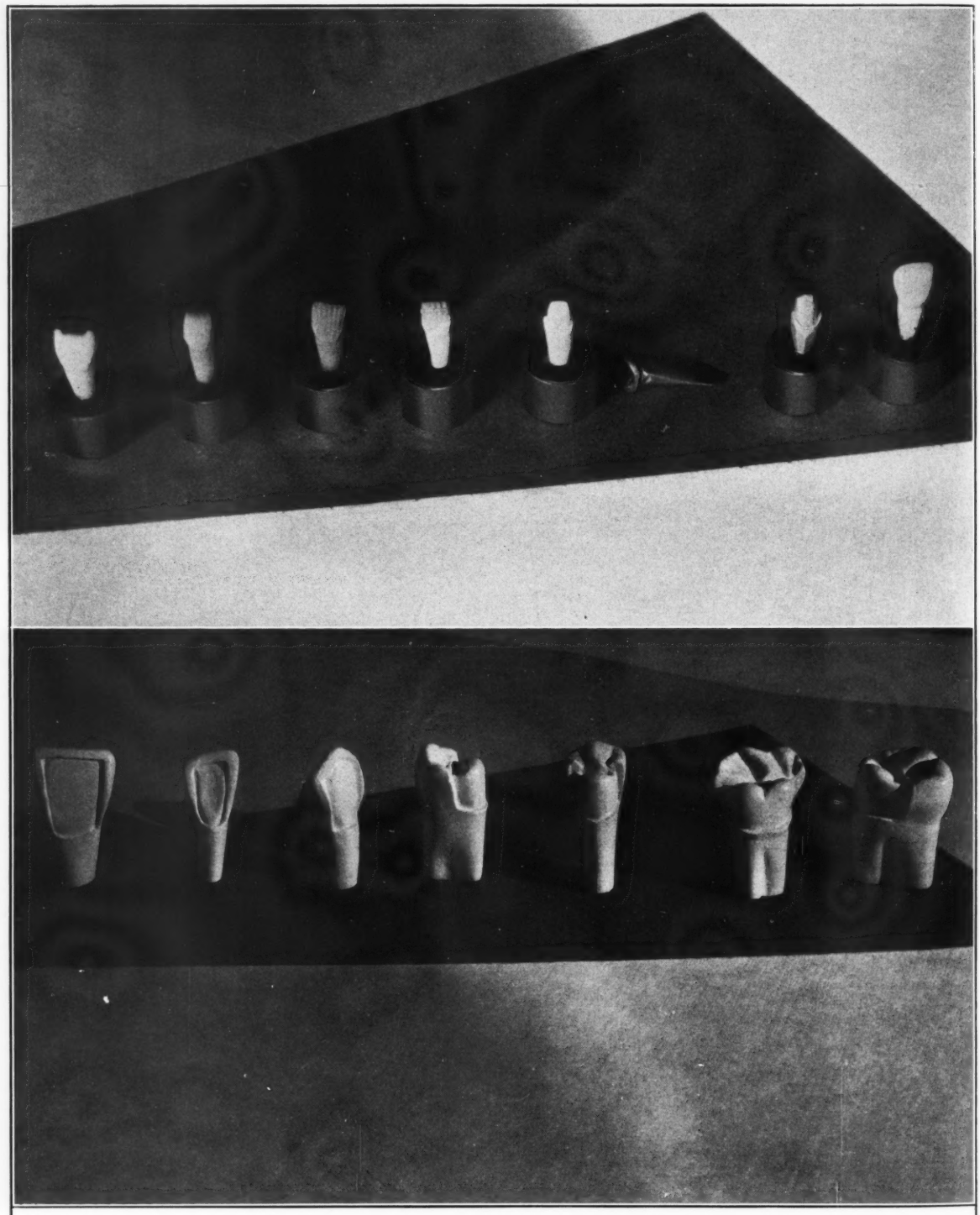

Fig. 7—Steps in preparation: tube impression; die; finished porcelain jacket crown.

Fig. 8—Approximate amount of tooth structure to be removed in the preparation for anterior and posterior teeth. Note that the cusps and grooves on the occlusal surface of the prepared posterior tooth remain.

DENTAL KINKS

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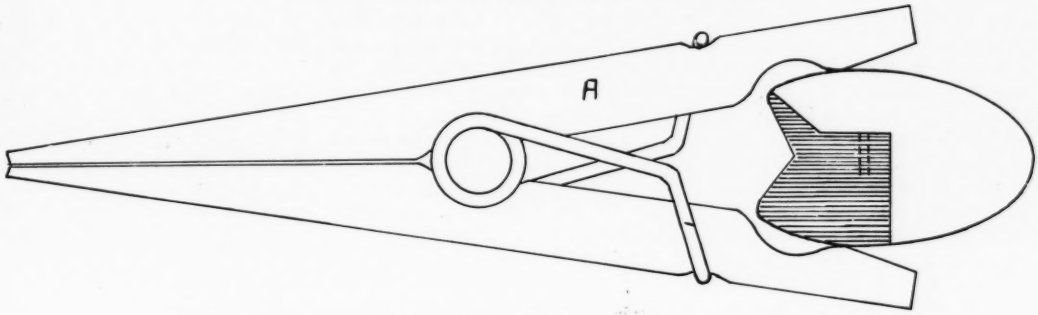
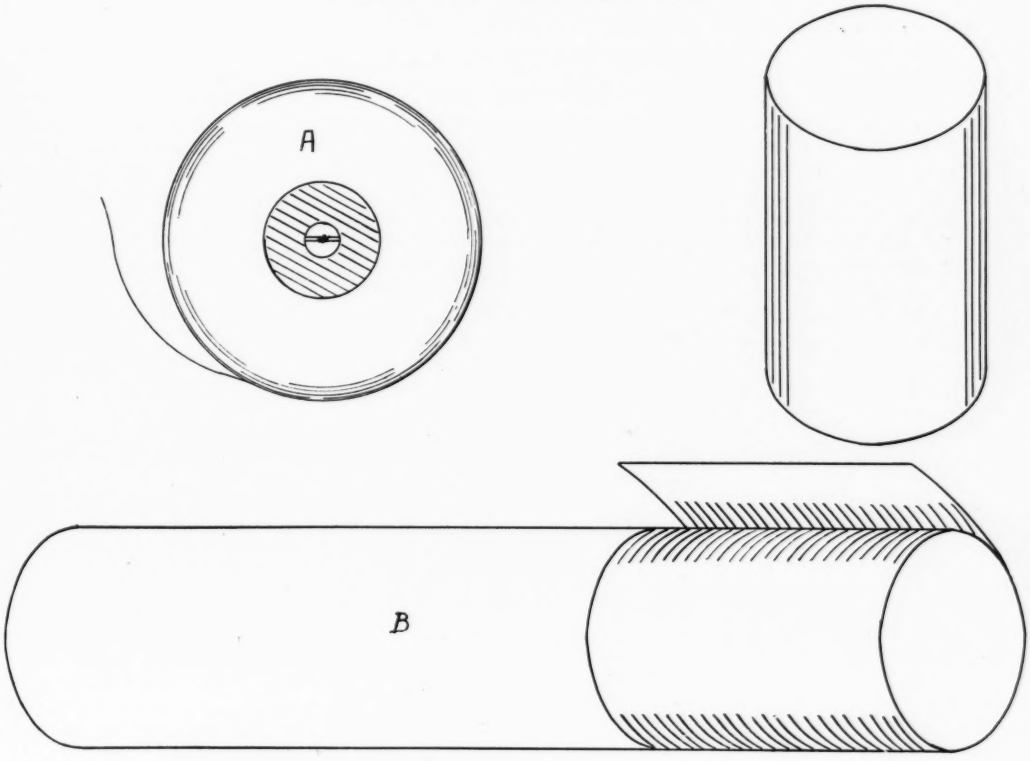
1. CEMENTING PORCELAIN FACINGS



The jaws of clothespin "A" can be remodelled to meet the requirements and is a valuable aid in cementing porcelain facings, etc., to their gold framework. The constant pressure will force them to seat and retain them in position until cement is set.

2. RING FOR AMALGAM DIES



"A" is a roll of gummed paper tape that revolves on a nail placed in a convenient place. Cut a strip about six inches long and wrap around wood roll "B," paste end, and remove. This forms a paper ring which is filled with plaster to imbed impressions to facilitate the packing of amalgam for dies.

THE PRACTICAL SIDE OF THE STUDY ON DENTAL PRACTICE[1]

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IT was frequently repeated, either in so many words or in meaning, that in 1929 this country was at the starting point of an era that would go down in history as the Golden Age. The professional economists of the country, with exceptions so few as to have been forgotten, all subscribed to the "new economic era" doctrine. It was, indeed, a period of intense optimism. At the close of the year 1928, President Calvin Coolidge, in his final message to Congress, was able to say:

"No Congress of the United States ever assembled, on surveying the states of the Union, has met with a more pleasing prospect than that which appears at the present time. In the domestic field there is tranquillity and contentment, harmonious relations between management and wage earners, freedom from industrial strife, and the highest record of years of prosperity. In the foreign field there is peace, the good-will which comes from mutual understanding, and the knowledge that the problems which a short time ago appeared so ominous are yielding to the touch of manifest friendship. The great wealth created by our enterprise and industry, and saved by our economy, has had the widest distribution among our people, and has gone out in a steady stream to serve the charity and the business of the world. The requirements of existence have passed beyond the standard of necessity into the region of luxury."

In the middle of October, 1929, Professor Irving Fisher wrote in the *New York Times* that stock prices had reached what "looks like a permanently high plateau." The tragic fate of this "new economic era doctrine" is commonplace knowledge today.

In 1929, the Bureau of Internal Revenue collected $1,146 millions in taxes from individual incomes; in 1930, $1,090 millions, but in the year ending June 30, 1931, only $833 millions. National wealth in 1930 dropped $32.1 billions or 8.9 per cent from 1929, and national income decreased during the year by $14 billions or 16.4 per cent. For the year 1930 as a whole, average earnings of wage-earners employed in manufacturing industries decreased 7.3 per cent from the 1929 level. The cost of living index for 1930 was 3.1 per cent below 1929. It is highly improbable that incomes of dentists have not felt the impact of the depression. In interpreting the income of dentists in the study,[1] it is seen that the income of 4,705 practitioners in a selected list of states averaged roughly $5,000 in the prosperous year of 1929. Only 66 per cent of the dentists circularized answered with complete questionnaires. It is probable that some of the other 34 per cent had not made a "go" of dentistry and the average net income figure is consequently overweighted with the "successes."

Influence of Age and Experience on the Size of the Income Stream

The professional earning capacity of a dentist starts from less than zero —"He starts from scratch and it is some time before his gross income exceeds expenses"—and it moves toward zero again in the last years of practice. The average net income of general practitioners during the first five years of practice is about $3,000; in the next five years (from five to ten years of practice) it goes up to $4,700; and in the following five years (from ten to fifteen years of practice), to $5,800. Sometimes between the thirteenth and fifteenth years of practice, a downward tendency sets in, and in the next five years (from fifteen to twenty years of practice), the average net income falls to $5,500, and the trend continues until the average income for a graduate of the class of 1890-1894 is about $4,300. The high point in the career of the typical general practitioner's income is reached about the thirteenth year of his practice. At this time it is just above $5,000 per year. This continues for two years and then begins to go down again, and increases in gross income seem to be absorbed by increased expenditures of operation. The average net income of physicians in general practice (the peak is reached somewhere in the period between fifteen and nineteen years in practice) in 1928 was estimated[2] at $5,250.

Out of every dollar of receipts, all dentists who supplied data on income and outgo paid out slightly less than forty cents for operating expense. This ratio varied with the size of the city, and in towns of less than 5,000 the general practitioner paid out of every dollar in fees only thirty-six cents; but in cities of more than one million, the outgo amounted to forty-three cents out of every dollar of receipts. If, therefore, the dental practitioner seeks to maintain an income on the $5,000 average level, his expenses of operation in towns of less than 5,000 population should be kept down to thirty-six cents out of every dollar in fees; in cities of more than one million, to forty-three cents out of every dollar of receipts, assuming all things equal.

The Larger the City, the Larger the Money Income

As with other occupations and physicians' incomes (high average incomes appear in metropolitan areas of one million and more; low gross averages in communities of 2,500 and less[3]), the dentist's income in 1929 varied with the size of the city. The higher cost of practice is only one explanation of the difference in the size of the income because the practitioner's income in the larger city left a margin beyond that of the dentist in the smaller city even after deduction of the higher cost of operation. The average difference in net income was

[1] Leven, Maurice: The Practice of Dentistry and the Income of Dentists in Twenty States, 1929, based on data collected under the direction of Dorothy F. Beck; Leuck, M. S.: A Study of Dental Clinics in the United States, 1930; Beck, D. F.: The Cost of Equipping a Dental Office, Chicago, The University of Chicago Press, 1932.

The objective of the Committee on the Study of Dental Practice in this series is "to present what it considers as certain fundamentals in the economic life of the dentist. . . . The purpose of the study is two-fold; (1) to provide comprehensive account of the practice of dentistry and the economic position of different classes of dentists in twenty states; (2) to develop basic facts to facilitate extension of information to cover other states as well." (Foreword)

[2] Leland, R. G.: Income from Medical Practice, p. 24.

[3] Ibid., p. 23.

about 73 per cent in cities of more than a million population and in towns of less than 5,000. The difference in the cost of living in towns of less than 5,000 and more than a million is by no means so large as this.

A second explanation for some of the difference is that in the larger city the salaried assistant adds to the income of the dentist-employer. Fees in the larger city for the same work are considerably higher, and all things being equal, the larger city practitioner's income is higher. The average charge for a single full vulcanite denture in towns of 100,000 and less, for instance, was about $32; in towns from 100,000 to 1,000,000, $51. The only exception to higher charges in the larger cities is the cost of the full-mouth roentgenogram, which is higher by about $2.50 in the smaller centers. The "typical" dentist placed a value of $5.00 an hour for his services in towns below 10,000; $6.00 an hour in cities between 10,000 and 100,000; and $8.00 in cities of more than a million.

1929—The Year of the Inflated Pocketbook

The net average income of 4,705 dentists in twenty states in the year 1929 was roughly $5,000. In states where incomes are generally higher, incomes of dentists show the same tendency. Dentists in New York had the highest average net income, $6,469. On the other hand, net incomes of dentists were lower in states where incomes are low, such as Georgia and Mississippi ($5,400 and $3,614, respectively). On the negative side, expenses of operation were lowest in Georgia, Mississippi, and Missouri, and highest in New York and Arizona. Incomes of dentists in towns with populations from 25,000 to 100,000 were higher by $100 than in towns of more than 100,000, but lower by $200 than in cities of a million and more. In towns from 5,000 to 25,000 population, incomes of dentists varied from $3,081 to $4,710, respectively. The practitioner in pursuit of the dollar, assuming that his psychic income, *i.e.*, friendships, family ties, sentiment for the "old home town," were of no importance, would have found more dollars in the larger city in 1929.

Specialization and the Size of the Dentist's Income

Specialization and higher income went together in 1929, and the higher the degree of specialization, the higher the income. In 1929, partial specialists received average net incomes of $6,100; full specialists, $8,600. In

Publications of the Committee on the Study of Dental Practice—A Digest

(University of Chicago Press)

A. The Practice of Dentistry and the Income of Dentists, 1929

Estimated number of dentists in the United States 56,800
Each serving an average of 430 patients a year or approximately 24,000,000
This approximate 20% of the population spent in 1929 on dental care $446,000,000
Which amounts annually per person served to ..... $18.00+
The number of replies to the questionnaire of the Committee on the Study of Dental Practice 5,544
From states 20

Averages:

These dentists were out of school ..... 15.6 years
They worked each week ..... from 46 to 48 hours
They worked each year ..... 48 weeks
They saw each day ..... 8 patients
Of their patients 60% paid within 30 days
The bad debt loss was less than 5%
The average gross yearly income of these 5,544 was $8,131
The average net yearly income of these 5,544 was $4,820
The average gross hourly income of these 5,544 was $3.50
The average net hourly income of these 5,544 was $2.08

Pertinent Conclusions

1. The peak in professional income is reached by dentists between the thirteenth and twenty-fifth year of practice.
2. In the professional life of the dentist the peak in net income is reached earlier than the peak in gross income.
3. High dental incomes are closely associated with the employment of personnel.
4. In general the dentists who have the highest incomes spend the least of their working time in the laboratory.
5. Professional expenses absorb about 41 per cent of the gross income of dentists.

B. The Cost of Equipping a Dental Office

Graduates (512) of 1930 spent on the average of $2,867 each for office equipment.

Distributed:

Operating room and laboratory	80.7%	$2,313
Dental supplies	6.5	187
Plumbing and wiring	5.7	162
Reception room furnishings	4.8	139
Miscellaneous	2.3	66
	100.0%	$2,867

(To next page)

(From preceding page)

Comments

1. "If this total initial investment is charged with 6 per cent interest annually, and if 10 per cent of the original investment in equipment is spent for the repair and replacement of worn or obsolete equipment, the average charge against the gross income of the dental graduate of 1930 for interest and depreciation on the original equipment of his office would be $440 yearly."
2. "It (the total expenditure) represents an underestimate rather than an overestimate of the average expenditure of recent dental graduates for the total equipment with which they are actually conducting their practices."

C. Dental Clinics in the United States, 1930

Definition: "A clinic has been broadly defined as any institution or organization which renders dental service. Private practice alone is thus excluded."

Total number of clinics listed	2,856
Total number of clinics reporting	1,530
Total number of chairs in clinics reporting	3,314
Total number of patients served	1,962,791

Distribution:

Those serving children exclusively	48+%
Those serving adults only	16+%
Those serving both	33+%

Agencies Conducting Dental Clinics:

	Percentage of Clinics in Type	Percentage of Chairs in Type
Local and County Governments	30.6%	21.6%
Hospitals	24.7	16.3
Federal and State Governments	17.6	11.9
Lay and Charitable Organizations	13.0	6.0
Dental Schools and Societies	8.9	41.2
Industries, Business Firms	4.9	3.0
	100.0%	100.0%

[Significant Statement

"Neither industrial clinics nor lay organizations, judged by the number of clinics they control or the number of chairs in their possession, bulk large in the general picture as it exists today, but their entrance into a field so alien to their primary interests assumes great importance for the profession, viewed in the light of an experiment by groups with great power and resources."

Ratios:

Roughly, 1 person in every 60 in the total population of the United States is now receiving dental services in a clinic.

For every 24 persons being served in private practice 2 are receiving dental care in clinics.

the climb to the higher income plateau, partial specialists reached the top five years later than the general practitioner (after the period between fifteen and twenty years of practice), or about the same time as the physician. The full specialist reaches the top five years after the partial specialist, and ten years later than the general practitioner.

Have these comparisons any practical significance for the graduate of 1932, for instance? Can the future dental practitioner plan his personal and professional economy around this income cycle? Will the cycle repeat itself in the future in the same way and in the same proportion? Only and if (a) the number of dentists relative to population keeps constant; (b) if dental hygiene and education produce no change in the incident of stomatologic disease; (c) if research fails to close in on the cause and prevention of tooth decay; (d) if income of the population allows for the same relative outlay for dental care as in the past. History repeats itself, but never in exactly the same way.

Of importance is the fact that dentists of graduating classes before 1917 who joined the home guards and continued practice made a better showing than their colleagues who closed their offices and assumed their share of the burden of fighting through the World War. Professional incomes in 1929 for dentists who practiced uninterruptedly through the war were higher. The corrollary of this is: If you go to war, all things being equal, do so at a point in time nearest zero in the income cycle.

Time and Patients Swell the Size of the Income

Net incomes of dentists in general practice, as is to be expected, vary directly with the time given to practice at the chair; the longer the hours, the higher the income. The time spent at the chair yields more return than the same time spent in the laboratory. Highest incomes are received by groups giving from forty to forty-seven weeks to office practice. The normal week of the average dentist consisted of thirty hours at the chair, six hours in the laboratory, and ten hours at other duties in the office, making a total of forty-six hours. The forty dentists included in the group that practiced sixty hours or more during the week constitute an exception to the tendency described; namely, the longer the hours, the higher the income. Their average income was $5,675 as compared with the group practicing from fifty to fifty-nine hours which had an income

of $6,207. This suggests that the optimum week is less than sixty hours, and that the time and energy required to produce a dollar in fees increases beyond this point. To borrow an analogy from economics, the same quantity of time and effort applied to treatment of a patient after sixty hours of practice yields less in fees than before the sixty-hour point is reached.

Dental Charges are Based on the Principle of what the Patient Will Bear

When patients were divided into four classes, according to the dentist's estimate of their incomes, from $1,500 to $6,000, charges for the same work varied by as much as 500 per cent. The dentist, in the fixation of the fee for his services, follows the practice of charging a class price. There is nothing uneconomic about this, for the marginal utility of the dollar paid by a patient with a $6,000 income is less than the dollar paid by the patient with an income of $1,500. A "prestige" price for the rich patient is a fundamental principle in dental economics—"96 per cent of the dentists varied their fees in accordance with the economic status of the patient."[4] The $10 fee paid by the patient with a $1,500 income represents an infinitely greater sacrifice than a $1,000 fee paid by the rich person. For that class in society whose social position depends on "conspicuous consumption," a class price is fundamental and the dental practitioner would lose the patient were he to fix a lower fee for his services. Here he stands in somewhat of a monopoly position in relation to his patient. The services of Doctor X in relation to the demand for Doctor X's and not Doctor A, B, C, or any other number of dentists, are a monopoly. If the patient desires Doctor X's services and not those of any other dentist, then it may be said that his demand for Doctor X's services is inelastic; in other words, he will pay Doctor X's fee rather than go without his services. The fact that the dentist charges a high fee is often the decisive factor that brings patients of a certain class to him, and to lower the fee would be to lose the patient. When this is back of the patient's demand for treatment, then the high fee becomes the rule of dental practice. When the patient is ready to substitute the services of any dentist for those of Doctor X in the example, then the competitive fee is decisive.

[4]Ibid., p. 67.

All Things Being Equal, Get a Down-Payment!

Strangers in the neighborhood, bad credit risks, large outlays for materials, of time, or laboratory work seem to call for an initial down-payment. Estimates of dentists practicing in cities of more than a million population who asked for a deposit in advance show that losses from bad accounts were less than 2 per cent. "Losses of not more than 1 per cent are sustained by 34 per cent of the dentists who always require a deposit in advance as compared with 29 per cent of dentists never requiring a deposit and 18 per cent of those requiring a deposit only occasionally."[5]

Present-Day Importance of the Clinic

The number of clinics per 100,000 of population in the States varies from .20 in Mississippi to 3 in the State of Maine. The clinic, broadly defined, "is any institution or organization which renders a dental service. Private practice alone is thus excluded. Such a definition made possible the inclusion of such widely different forms as school dental service, industrial dental service, service in public institutions, to the army and navy, veterans, and through various private agencies, many of which retained a large percentage of the attributes of private practice, but in which there is present the intervention of a third party between the dentist and his patient."[6] In their present state of development, clinics reveal no adverse influence on the size of the dentist's income. In Mississippi, where the number of dental clinics is relatively insignificant, average net incomes were also low. In Arizona, where the number of clinics is greater, incomes of practitioners were high. It is probable that the clinic on the present level of growth sends the patient to the practitioner. In the clinic, the patient gets a smattering of knowledge on the relation of dental care to health. Dental treatment now assumes a relatively greater importance in his mind than before. In deciding how to distribute his income, preventive dentistry is more likely to displace some of the other things for which purchasing power is spent after some education than before the patient had any understanding of dental hygiene at all.

The more fundamental facts are absorbed concerning the function of preventive dentistry, the more likely is it that a patient will estimate the utility of treatment more highly than other commodities at the margin of consumption. Then, instead of spending, let us say, $25 for that class of goods called "illth"—chewing gum, trinkets of all kinds—$18 (the average expenditure by persons receiving dental treatment in 1929) might conceivably be expended for dental care.

By far the larger number of clinics, as defined, may be excluded from consideration as influences tending to decrease the practitioners' income; thus, service in public institutions, to the army and navy, veterans, prisoners, the feeble-minded, and so on, may be ignored altogether. Those found in industry call for comment. The industrial population of the country is roughly thirty-eight millions and seventy-six clinics scattered over the country should hardly provoke alarm. In the "fat" years, entrepreneurs sometimes wax sentimental concerning the welfare of workers, and go so far as to provide some kind of medical, dental and nursing care, but when the "pinch" of profits is felt, such altruism is soon abandoned. From the standpoint of dental economics, the clinic becomes a factor when persons in the income class of $1,500 and above go to the clinic in increasing numbers, and there is no evidence to show that this is the case at present.

Social Dentistry and the Clinic

Of special concern to the dental profession is the intervention of the state as a third person between the dentist and the patient. For that class in society which cannot pay for dental care except at the cost of barest necessities, there can be no argument but that some organized agency should provide the necessary treatment. By definition of a profession, dentistry is committed to treatment of whatever class is in need of it. Dental care of the poor is a responsibility of professional dentistry rather than professional politics. The incidence of such care, however, should by no means be shouldered by dentists alone any more than the cost of feeding under-nourished school children should be borne by school teachers, or the burden of housing by architects. Dentists are no more responsible for the familiar fact that the economic system as it is allowed to work at present does not provide a decent standard of living for the population as a whole than are physicians, engineers, or any other professional group. On the other hand, it is altogether probable that the cause of this condition can be traced to the fact that when it comes to a consideration of ailments affecting the body politic even the man on the street regards himself competent to write the

[5]Ibid., p. 72.
[6]Footnote 1, reference 2, pp. 2-3.

prescription for the economic ills from which our complex order of society suffers. As a practical matter, therefore, there is a strong presumption that the most effective prescription for the preservation of health as it is affected by stomatologic conditions can and should be written by dentists rather than by politicians.

Conclusion

Let welfare agencies of the state determine as accurately as possible the number of persons in a given community who cannot bear the cost of dental care except at the expense of elementary necessities. Further, let such agencies refuse demands for free dental care by those whose income, over and above bare necessities (up to $18, the average spent by those receiving dental care in 1929), allows for expenditures for commodities in the "illth" category on the ground that those persons whose incomes are above the existence minimum have no more claim on the state for free medical and dental service than they have for food, shelter, clothing, or a radio. If, before the exclusion of the "illth" increment, the income of any person leaves nothing for dental care, then dentistry, taking a long-run view of its professional welfare, can well endure the incidence of several hours per capita per year in the interest of the health of society. But, dental and medical treatment in the individual's scale of consumption must be placed after the prime necessities where it belongs, and not toward the end on a level with trinkets and other showy trifles. When this rearrangement in the scale of consumption occurs, then the evidence for state dentistry is shorn of all or most of its force.

[Editor's Note: The charts accompanying this article were prepared from the publications of the Committee on the Study of Dental Practice by the editorial staff of The Dental Digest.]

DENTAL ASSISTANTS AND SECRETARIES

ELSIE GREY

Have you a particular method, or have you a time saving short-cut that lightens the work or makes for greater efficiency in the office? You may help many who are beginners—and you know how you needed help during your first few months in a dental office. Perhaps you need help now. Write to Elsie Grey—she will help you.

Address all communications to Elsie Grey, in care of The Dental Digest, 1125 *Wolfendale Street, Pittsburgh, Pa.*

Sterilization of Platinum Needles

A reader requests information for the care and sterilization of platinum needles. She states that the needle hubs become discolored when kept in phenol or alcohol, or in a dry sterilizer.

Answer — Sterilization by boiling and careful drying before the needles are placed in a storage container are suggested. As soon as needles show traces of discoloration, they should be polished with a brush used on an engine hand-piece. If the needles are polished, boiled, carefully dried with sterile gauze, and stored in a covered receptacle or sealed container, they can be "flamed" immediately before using. This procedure maintains platinum needles in as good and sterile a condition as can be accomplished in every day practice. To "flame" a needle is to pass it through the flame of an alcohol lamp or a Bunsen burner.

Iodine Stains

A reader requests the formula for the removal of iodine stains.

Answer—(a) Apply a saturated solution of sodium hyposulphite (x-ray "hypo" solution); allow to remain until stain disappears; rinse well in clear water.

Or (b) apply "household ammonia," or a weakened solution of concentrated ammonia, until the stain is dissolved; rinse in cold water.

Use these solutions only on colorless materials. Do not allow ammonia to spatter varnished surfaces. The ammonia formula can be used for stains on the hands or face, provided it is followed immediately by the use of clear water and a good hand cream or skin lotion to allay the irritating effect of the ammonia.

Laboratory First Aids

1. To the assistant who helps the dentist in the making or repairing of vulcanite dentures, nothing is more annoying than to have plaster stick to the dentures as they come from the vulcanizer.

We suggest soaking the dentures for a brief time in vinegar, or in a weak solution of acetic acid. This will dissolve the plaster and it can be quickly removed with a stiff brush and water. Do not allow the dentures to remain in the vinegar or acid solution for more than a few minutes at a time.

2. If new rubber tubing in the laboratory is tight and refuses to slip easily over the metal connections, try heating the tubing slightly over the Bunsen burner; this will soften the rubber and allow it to stretch when pulled into place. Be careful not to scorch or burn the tubing when heating it.

3. For the removal of teeth that are cemented to gold fixtures, such as bridges and dentures, immerse in hydrochloric acid for about three hours. This will soften the cement. The fixtures should be placed in a glass or porcelain container. Do not spatter the acid; it is very caustic. Keep the acid in a glass bottle with a tight, ground glass stopper; otherwise it will evaporate. When removed from an acid bath, dentures should be washed in clear water before handling. Ammonia or a strong solution of sodium bicarbonate should be applied at once to an acid burn or spot on a uniform, and then washed off.

Brightening Instruments

The following is a suggestion to restore discolored instruments which have been lightly attacked by rust corrosion:

Immerse instruments in a saturated solution of chloride of tin for about twelve hours; rinse well, and polish with a soft cloth or chamois skin. The instruments should be kept in a covered porcelain or enamel dish. Remove with pliers; use rubber gloves; do not allow solution to spatter garments, linen, or varnished surfaces.

LETTERS

In addition to the practical value of the DIGEST articles, the magazine is a work of art; it is a new departure in dental magazines. — FREDERIC MCCALL, D.D.S., *Binghamton, N. Y.*

I have just finished reading the new issue of THE DENTAL DIGEST and have found it very interesting and profitable.

Although I am only a student, I feel that if I can keep up with the progress of dentistry through the agency of your magazine I'll be a modern dentist in every sense of the word when I graduate.

The articles on pyorrhea and inlays and castings interested me most.—ROBERT SCHWARTZ, *New Orleans*

Each day since the receipt of the January issue of THE DENTAL DIGEST, I have intended to write you and congratulate you on the very fine dental publication which you have compiled.

Undoubtedly, you have received many letters of congratulation, as the manner in which you have prepared this issue and presented your subjects, I am sure, would attract attention.

The magazine is different, and your subjects are so beautifully presented that they should benefit all dentists who received this issue. The photographs which you have prepared attract the interest of any dentist and make him desirous of reading the article and of studying the cuts, thereby benefiting himself very definitely.

I am sure that if you continue as you have begun, you will build up the circulation of THE DENTAL DIGEST and make a valuable contribution to dental literature.

I extend you my sincere good wishes for your success in this new endeavor.—HOWARD C. MILLER, D.D.S., *Chicago*

I enjoyed the January, 1932, issue of the new DENTAL DIGEST very much, and I wish you greater success than you already anticipate.—ROLAND REMOND, D.D.S., *Akron*

I have just received the first issue of the new DENTAL DIGEST. Allow me to congratulate you on your excellent piece of work. It is a big advance in dental publishing.—W. M. DUNCAN, D.D.S., *Dayton*

THE DENTAL DIGEST is certainly good. One picture is worth more than a thousand words.

As a subscriber, I would certainly appreciate having you print something about the preparations for gold inlays, three-quarter abutments, etc. The technique should include the instruments used, and there should be pictures of the preparations.

I wish you luck with your new magazine. — RALPH CHERNIAK, D.D.S., *South Boston, Mass.*

I am enclosing my subscription to THE DENTAL DIGEST. I feel this is the best investment I have ever made. Keep up the good work, and success is yours.—DAVID A. FRANKEL, D.D.S., *Chicago*

I acknowledge with thanks the copy of THE DENTAL DIGEST, upon which I must certainly compliment you most highly. It is a beautiful publication and I think should be of great interest and usefulness to dentists.—HARRY B. JOHNSTON, D.D.S., *Atlanta*

I most cordially praise you for the splendid new DENTAL DIGEST that you have published.—GONZALO SUAREZ ESCALANTE, D.D.S., *Mexico City*

I have just received THE DENTAL DIGEST, and I congratulate you on the fine way in which it is gotten up. It is a new idea in dental publications and should surely meet with success.—E. E. BAILEY, D.D.S., *Denver*

I congratulate you upon the magnificent manner in which this journal has been made up, particularly on the type of print and paper that you have used and the beautiful cuts. If you continue this make-up in future issues of the magazine, I feel sure that as time goes on THE DENTAL DIGEST will meet with great favor and that you will receive a large number of subscriptions.

I am looking forward with great pleasure to receiving the second issue.—OREN A. OLIVER, D.D.S., *Nashville*

The new DENTAL DIGEST has all the earmarks of a really up-to-date journal and I compliment you upon it.—MATTHEW N. FEDERSPIEL, D.D.S., *Milwaukee*

Please accept my hearty congratulations upon the first issue of the new DENTAL DIGEST. Upon glancing through it, I am thoroughly impressed with the care and thought that have been given this publication. I am sure that your efforts will be rewarded with prompt recognition by the profession.—F. VAN MINDEN, D.D.S., *Chicago*

Excellent! That, in a word, expresses my reaction following a hasty examination of the first issue of the new DENTAL DIGEST. Its new size, quality of paper, many illustrations, and fine typographical appearance appeal to the eye and, I am sure, reflect, the merit of the editorial and advertising content.

I am anticipating much pleasure when I am able to peruse its pages more carefully.—E. E. PARKINSON, *Madison, Wis.*

Many thanks for the copy of the new DENTAL DIGEST. It is a very attractive magazine, and I wish you all the success in the world with it.—S. J. LEWIS, D.D.S., *Detroit*

The new DENTAL DIGEST is a revolutionary departure from the dental magazines to which I have subscribed during the last fifteen years.

In format, excellence and clarity of illustrations, subject matter, and method of presentation, it seems quite complete and dignified.

You have my sincerest wishes for the success which the DIGEST deserves. — CHARLES I. STOLOFF, D.D.S., *New York City*

I am perfectly sincere when I say that I think THE DENTAL DIGEST is the most beautiful dental journal I have ever picked up. From the outside cover right on through, it is simply splendid. I have always been a sort of crank about the magazines I take for my reception room. I have *Fortune, Vanity Fair, Time,* etc. I abhor the cheap appearance of the magazines that most dentists have in their reception rooms.

I do not mean that I am going to put THE DENTAL DIGEST in my reception room, for I never leave any dental publications out there; but I like nice things for my private business office, as well as for the reception room, and the new DIGEST is the first and only dental publication that I have ever seen that has a rich, high-class appearance.—GEORGE W. MATTHEWS, D.D.S., *Birmingham*

The finest material throughout is certainly used in THE DENTAL DIGEST, and it is a journal you can be proud of. The Editor's Page does hit the nail squarely, and the same should apply to clinicians and essayists who appear on programs throughout the country.—IRA G. NICHOLS, D.D.S., *Champaign, Ill.*

The January issue of THE DENTAL DIGEST is most interesting. The illustrations are splendid, and the journal is a worthy contribution to dental literature.—WILLIAM O. HULICK, D.D.S., *Cincinnati*

The new DENTAL DIGEST came today. It's all and more than I thought it would be judging from advance copies. It should be sensational, and it will boost itself.

The color used in it still has me gasping. More power to you!—BENJAMIN B. KAMRIN, D.D.S., *Brooklyn, N. Y.*

I have to let you know how delighted I am with THE DENTAL DIGEST. It is my belief that it transcends anything and everything in brevity, lucidity, and beauty that has hitherto been published in the dental world.—HYMAN FREEDMAN, D.D.S., *Brooklyn, N. Y.*

Yesterday I had the pleasure of receiving the first number of the new DENTAL DIGEST. Great! Grandiose! I can't find words to tell you the magnificent impression it made on me! But I do congratulate you.

Really, we now have the best dental publication in the world. Keep on! — JORGE C. MESTRE, D.D.S., *Santiago, Cuba*

The new DENTAL DIGEST shows great improvement over the old one, and I hope you have success with it. — CHARLES W. MULLEN, D.D.S., *Leavenworth, Kansas*

I have just received my January DIGEST. I opened it up, glanced at it, and tossed it on the desk where it lay for three whole days. But when I did pick it up I did not lay it down until I had read it from cover to cover—advertisements and all—and I wish you much success.—H. A. MAGRUDER, D.D.S., *El Paso*

I enjoyed the first number of the new DENTAL DIGEST. It is quite an innovation —so different from the old DIGEST and, for that matter, from any other dental journal I have seen.—GLENN W. BERRY, D.D.S., *U.S.N.*

I have just received the first issue of THE DENTAL DIGEST in its new form and hasten to congratulate you and express my appreciation of the work you are doing. Now we have a journal that really instructs and interests, and the profession, I am sure, will be delighted. Keep up the good work. — M. E. RITCHIE, D.D.S., *St. Boniface, Manitoba*

I think congratulations are due you on the new DENTAL DIGEST. We have needed such a journal for many years. — H. H. BRAXTON, D.D.S., *Phoenix, Arizona*

The Editor's Page

ELSEWHERE in this issue (page 102), is an article by Peter T. Swanish, Ph.D., interpreting the publications of the Committee on the Study of Dental Practice. For the past three years, this Committee has cooperated with the Committee on the Costs of Medical Care which has borne part of the expense of the studies.

The Committee entered the field of economic study with few guiding facts. Any available figures on dental incomes were either hopelessly out of date, comprised too small a group, or were considered inaccurate for accepted statistical practice. The first duty, then, was to perfect an organization to gather the facts of dental practice.

In the construction of an organization, two choices were open: (1) the fact-finding organization might be composed of dentists; (2) it might be made up of persons who had neither a dental training nor outlook. Fortunately, the Committee chose persons outside the profession to make the study who could, therefore, approach the problems disinterestedly, that is, scientifically. If dentists had made these studies, without the aid of trained economists and statisticians, there would have been some doubts regarding the validity of the findings. Not that dentists would wilfully distort the facts, but from the nature of their intimacy with the problems, they could not approach the subjects impersonally and objectively. Certain traditional patterns, phobias, theories, enthusiasms, or prejudices might easily color the picture.

It should be made plain, however, that the Committee was appointed to gather facts, not to make programs. The function of the committee clearly ends when the facts are obtained; interpretation of the results of the investigations, and, based on these results, the laying of plans and a program for the future challenge our leadership. Anyone who reads the three present publications of this Committee will quickly see that thus far the Committee has done its job well. The efforts and money have been well spent. Now we have a body of available data from which principles may be evolved.

We have all been somewhat nervous and worried about the future of dental practice. Large of figure and red have been the shadows in our nightmares of corporate and government practice. We have, perhaps, become hypersensitive and unduly apprehensive as one does of all phobias. Doctor Swanish looks at the picture clearly and destroys some of the phantoms. He explains that business is not founded on a principle of altruism, and that it is unlike industrialists to enter the field of corporate dental practice except when "in the 'fat' years, entrepreneurs sometimes wax sentimental concerning the welfare of their workers."

But it is not easy to pass off the threat of state dentistry. Paternalism in government and taxation orgies do not assure us that socialized medical practice is impossible. If that day comes, we may consider some form of resistance—either active or passive. But to sit serenely by is not enough. We should be prepared and organized to dictate conditions and terms.

Dentistry should oppose any discriminating legislation that tends to place an unfair burden upon the profession. Likewise, we should oppose popular viewpoints that are likely to place an undue emphasis on free dentistry for the under-privileged—at the expense of the private practitioner. For the genuine indigents, we should do our part to relieve their suffering. But to give free dental services indiscriminately and unwisely would be as demoralizing as to give away free food, clothing, shelter to the undeserving. We should fight the "dental dole."

The burden of dental care for the indigent cannot and should not be borne by the profession alone. That is a function of taxation as definitely as the maintenance of charity hospitals, asylums, poor farms. But we must be constantly alert to the subtle transformation from state care of the indigent to free care for those who can pay a fee however small. For that in-between group that is neither in the charity class nor in the private practice class, pay-clinics *under the supervision of the profession* might be a solution. In fact, it is quite conceivable that such pay-clinics might act as preparatory training schools in spreading the importance of mouth health, and that when a person emerged from a lower economic level to a higher one, he would be prepared and anxious to accept the services of a private practitioner.

THE TWINS

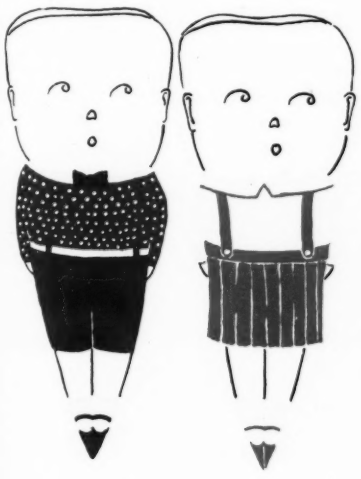
Story and Drawings by ELMA J. MILLER
Liberty, Arizona

H, my tooth's loose," cried Dicky, as he skipped into the dentist's office. "Mother says it's going to come out and another one will grow there."

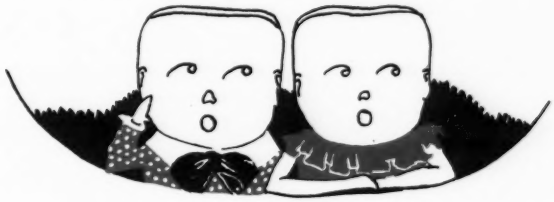
"Yes, it's one of the restless twins," answered the Man-In-The-White-Coat, looking into Dicky's mouth, and gently working the tooth back and forth.

"But why are they called twins?" asked Dicky.

"Because that tooth and the one next to it look so much alike. There is another set of twins living upstairs. The twins downstairs were the first to arrive. They've always remained near the front of the Cave, and they see so many interesting things in the world outside that they begin to long to go out into it. Every day they peer out of the Cave, and wish that they might go soon. Each day they lean out a little farther. They have lost interest in romping with their little playmates. Although they eat and sleep and keep themselves clean, they spend most of their time gazing out upon that wonderful, exciting space that begins just outside the Cave and stretches on and on as far as they can see."



'They look alike"



"Every day they peer out of the cave"

The Man-In-The-White-Coat paused in his story, and said: "But let's listen to them tell their own story."

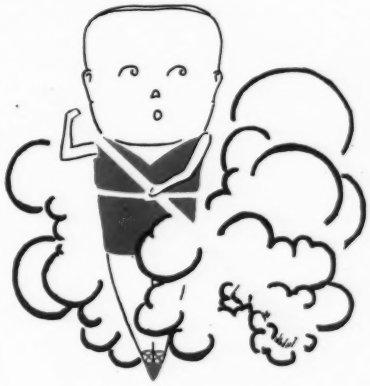
* * *

"Dear, dear," sighed Eager-To-Depart, "will the time ever come to leave this big dark Cave? We've been here six years today. It's been fun living here, but I keep wondering if it wouldn't be more fun outside."

H, I'm sure that we will go soon," answered the second twin whose name was Eager-To-Depart-Too. She was not so lazy as her brother twin, so she said, "But we must remember to keep right on cleaning and scrubbing our part of the Cave, as well as ourselves, twice a day, just the same as we always have."

"Why bother?" yawned Eager-To-Depart who was always looking for an excuse to avoid work. "We'll be leaving in such a few days. My corner in this Cave doesn't interest me now. In fact, I haven't paid much attention to it at all lately. I shall let the one who moves into my place worry about that."

"But that isn't fair," disagreed Eager-To-Depart-Too, who was always anxious to do the right thing. "It doesn't give him a chance to grow into a strong, healthy Cave Child. His place must be kept clean for months, even years before he moves in. Otherwise he'll always be weak and crooked and full of pain. It's your work to prepare his place for him, Eager-To-Depart."



"I'll get right to work"

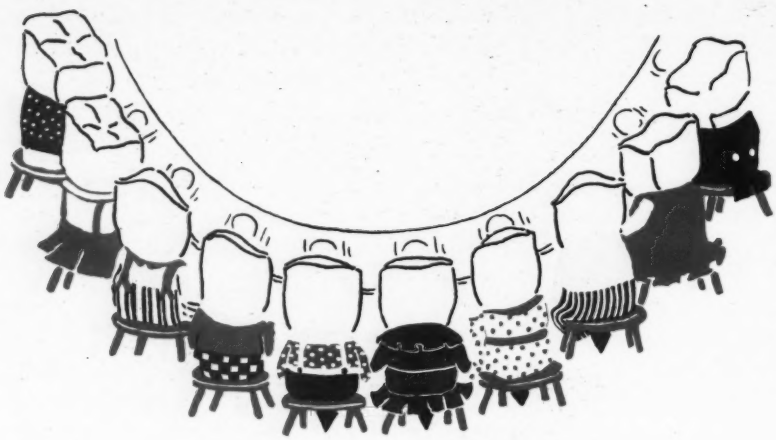
"I never thought of that," answered Eager-To-Depart, looking sorry all of a sudden. "I'll get right to work and clean up. Then let's see how far we can lean out today, shall we?"

H, that will be fun! And what strange sight do you think we might see?" asked Eager-To-Depart-Too, with face beaming in wonder.

"Dunno," spattered Eager-To-Depart, in a cloud of foam. "I'll be there soon. You go ahead and start looking."

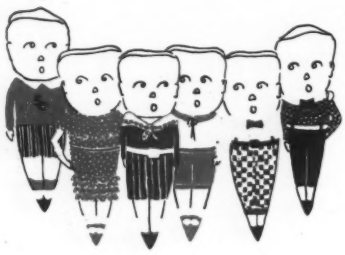
* * *

"I'm hungry," sighed Slow-To-Arrive from his place upstairs. "It's past dinner time, too."



"We have always eaten such crispy food"

"Aren't you glad," called Eager-To-Depart-Too, "that we have always eaten such crispy food. So much exercise has pushed the walls of our Cave back and back until there's enough room for the new children who will come into the Cave to take our places when we move out."



"They wouldn't have room to stand up straight"

"What would happen if it hadn't grown?" asked Eager-To-Depart.

"Why, don't you know? They will be larger than we are, and there will be more of them. They will need lots of room. If they can't have it, they will always be jostling and bumping into one another, and maybe one will even lean against his neighbor. They wouldn't have room to stand up straight and grow strong."

H," gasped Eager-To-Depart, "is it that important what we eat and how we behave? How much depends on us! I'm going to eat a nice crunchy apple every day."

"I don't think I can eat any more hard food. It's beginning to hurt me.

"I am ready to go"

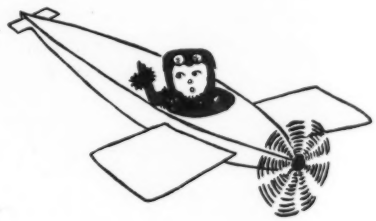
That must mean I will leave the Cave soon. I packed my trunk this morning, so I am ready to go."

"But aren't you going to wait for me?" begged Eager-To-Depart. "Please do!"

"We might go together. But if I leave a few days earlier, I'll wait for you outside."

"And wait for us, too," cried the twins from upstairs. "We shall be leaving soon."

"All right," promised Eager-To-Depart-Too. "We'll all meet outside the Cave and go away together to explore the world. Of course, we can't ever come back, but I'm sure we won't even want to after we've lived out there awhile . . . But how odd and jiggly I feel . . . Why, it must be time to leave the Cave. It is . . . And here I go. Good-bye, everybody!" called Eager-To-Depart-Too, as she flew out of the Cave. The twins upstairs waved until she was out of sight.



"Good-bye, everybody!"

* * *

"Here's your tooth, Dicky," said the Man-In-The-White-Coat, holding it out to him.

"Why, it's Eager-To-Depart-Too," gasped Dicky. "I'll keep it until Eager-To-Depart leaves the Cave, because Eager-To-Depart-Too promised to wait so they could stay together always."

Reprints of this article and "The Cave People," which appeared on pages 71-72 of the February issue, are available. They will be printed in full color and will be attractively arranged as four-page pamphlets. Ideal for distribution to mothers and little patients. Prices: 50 copies, $3.00; 100 copies, $6.00; 500 copies, $25.00; 1000 copies, $40.00. Remittance must accompany order. Write to The DENTAL DIGEST, 1125 Wolfendale Street, N. S., Pittsburgh, Pa.

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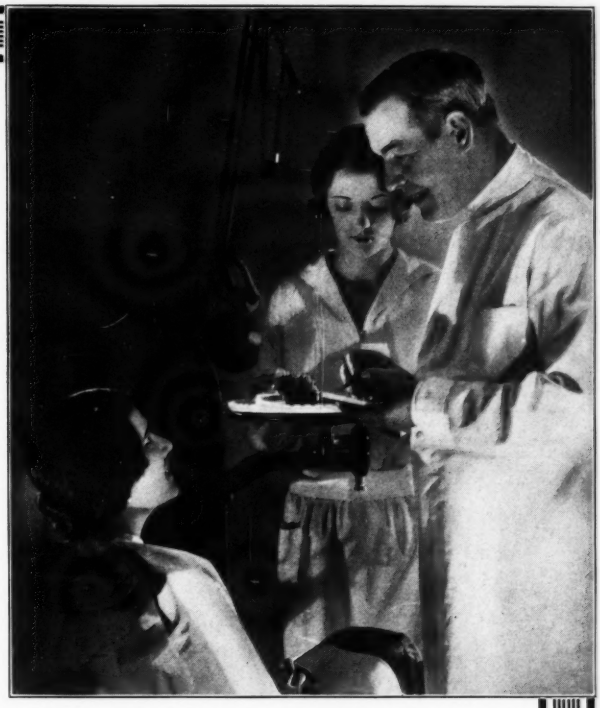

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R. C. BENTZEN, D.D.S.
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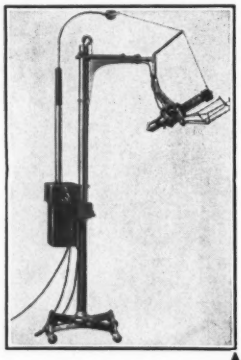

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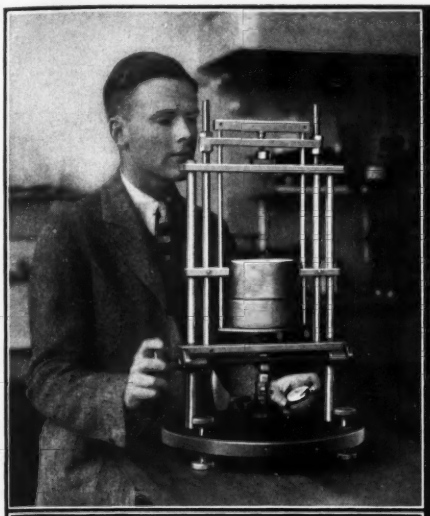

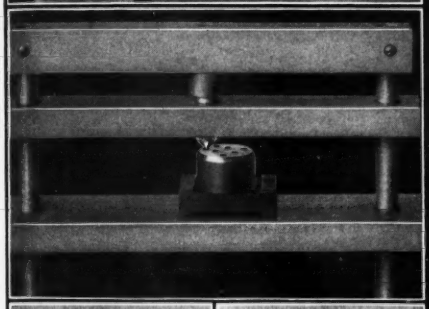

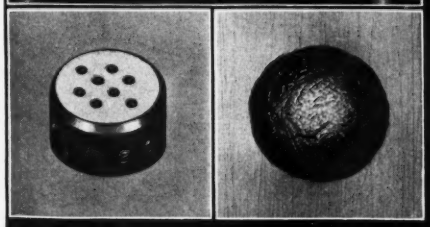

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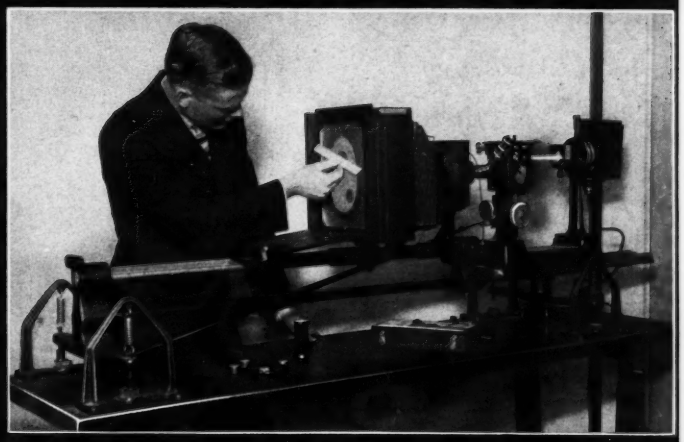

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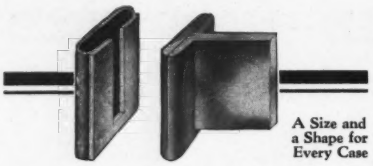
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(From page 116)

After the manuscript has been edited by the clinician the table clinic, on paper, is ready for DIGEST readers. Thus, for the first time, so far as we know, important table clinics are made available for those who have not been able to attend the meeting.

The color plates in Doctor Miller's article, beginning on page 90 of this number, were reproduced from colored lantern slides. Readers who have appropriate material in this form are invited to write to the editor. The process employed by THE DIGEST, faithfully reproduces such subjects.

Owing to the length of time required for printing the color pages, Doctor Ryan is anxious to build a reserve supply.

In a splendid letter, printed on page 74 last month, Doctor S. A. Allen, of Glendale, California, said we built a fire under his disposition by numbering pages at the foot. I think he is right. Charles W. Barton also suggests that the titles of articles be repeated at the top of all pages following the title page. But we hesitate to change the makeup during the present volume. Or shall we? Please tell us.

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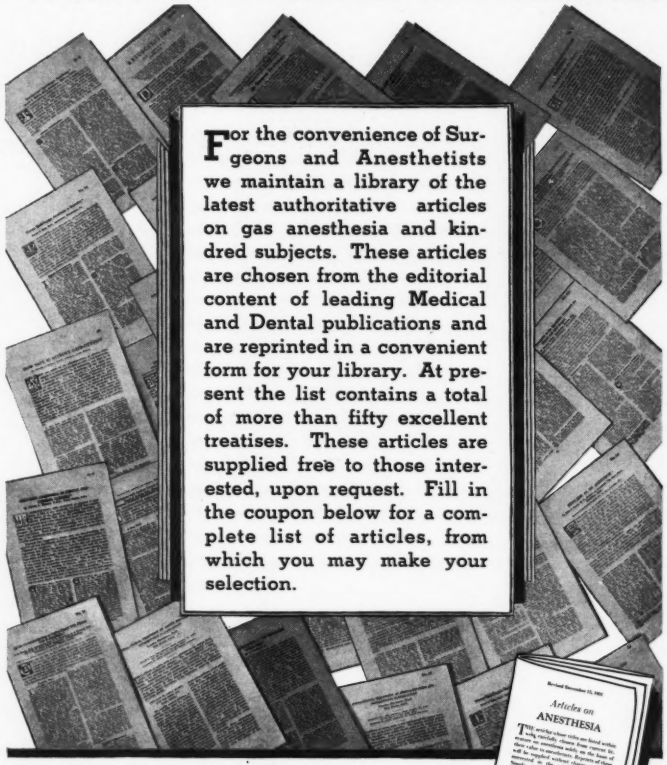

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